



VOICE OF THE DIABETIC

A SUPPORT AND INFORMATION NETWORK

The Diabetics Division of The National Federation of the Blind

Volume 3, No. 4

Fall Edition

Page 1

Blind Diabetics Do Measure Their Own Insulin

By Donna Siebert



Donna Siebert is the president of the Sacramento Chapter of the National Federation of the Blind of California and co-chairs the position of State Representative for the Diabetics Division of NFB. Donna has had diabetes since childhood and became blind from diabetic retinopathy 18 years ago. She shares her method of independently drawing and measuring insulin.

(Editor's Note: This article appeared in the *Blind Citizen* Magazine, Summer 1987, published by the National Federation of the Blind of California.)

With the use of several simple alternative techniques, diabetics who lose their sight can independently draw and measure their own insulin.

The first step in preparation for

drawing and measuring insulin is to be sure that there is enough insulin in the bottle. I do this by recording the date when I start a new bottle of insulin and carefully calculating the number of injections which can be drawn safely from the bottle without risk of getting air into the syringe. For example, if I begin using a bottle of U-100 insulin and require 40 units per day, the bottle will last 25 days. To make sure that no air is inadvertently drawn into the syringe, I count on a 23 day supply from the bottle.

The second step in the drawing and measuring of insulin is the preparation of an accurate measuring device. The measuring device can be cut from a wooden dowel, a piece of plastic drinking straw, a strip of metal, or let your imagination go to the wind and use whatever works for you. The measuring device should be cut to the correct length so that when it is placed between the open end of the barrel and the pushing end of the plunger, it will

function as a stop when pushing the plunger into the barrel, thus causing the plunger to stop at the required dosage of insulin.

I suggest that the blind diabetic have measuring devices for each anticipated dosage of insulin. Sometimes I take five units of insulin and other times either thirty-six or thirty-eight units. Thus, I have three different lengths of measuring devices from which I select when I prepare my insulin shot. Through the years, I have found that cut pieces of plastic drinking straws make very good measuring devices for me because straws are inexpensive and easy to obtain and because they are easy to roughly cut and then carefully cut a little at a time to form an accurate measuring device.

The third step when drawing insulin is to make sure that there is no air in the barrel of the syringe. I do this by partially filling the barrel and shooting the insulin back into the bottle several times. When

(Continued on page 2)

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Voice of the Diabetic is a national publication of the Diabetics Division of the National Federation of the Blind. It is read by those interested in all aspects of blindness and diabetes. We show diabetics that they have options regardless of the ramifications they may have had. We have a positive philosophy and know that positive attitudes are contagious!

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Inside This Issue

Blind Diabetics Do Measure Their Own Insulin

by Donna Siebert 1

Caveat Emptor

by Susan Manchester 2

Drug May Aid in Stopping Diabetes

. 2

New Insulin Absorbs Faster 3

Preparation and the Critical Nudge

by Marc Maurer 3

Ask Dr. James

by Ronald James, M.D. 6

My Children Are Healthy and I Have Diabetes

by Tracy Bitter Pressly 7

Can I Have a Safe Pregnancy and a Healthy Baby?

by Theresa Bunkers Lawsen, R.N., and Ellie Strook, R.N., B.S.N. . . 8

Eating for Two: Good Food for Your Healthy Baby

by Diane Dimperio, R.D. 9

Is Family History Important During Pregnancy? Is Biking Safe? 9

Female Hormones Affect Diabetes

by Lois Jovanovic, M.D. 10

Diabetes in the Infant

by Richard Guthrie, M.D., FAAP . 10

Pets: When a New Baby Arrives in the Home

by Warren Eckstein 11

Australian Scientists Report Their Findings on Cause of Diabetes . . 11

ASU Profs Develop Sensing Device to Regulate Insulin Flow 12

Insulin Pumps—What's It All About? by Royanne R. Hollins 12

Breakthrough in Treatment of Kidney Failure Patients with Anemia

by Anne Campbell, M.S.P.H. . . 13

It's That Time of Year

by Ed Bryant 14

Recipe Corner 15

What You Always Wanted to Know But Didn't Know Where to Ask

Resource List 16

Tidbits and Humor 16

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Blind Diabetics

(Continued from page 1)

I feel confident that there is no air in the syringe, I pull the plunger back far enough to draw off a little more than the required amount of insulin. I then insert the correct measuring device parallel to the shank of the plunger and push the plunger into the barrel of the syringe until it stops.

I find it helpful to keep my measuring devices in a small container along with my insulin. As a helpful suggestion to a blind diabetic who requires two types of insulin and who does not yet read braille to mark the insulin bottles, I recommend the use of a rubber band or a piece of scotch tape to mark one bottle while leaving the other bottle unmarked.

One point of caution should be mentioned. The measuring devices should be used only with the specific brand and size of syringe for which they were made. The design of the ends of the barrel and plunger changes from manufacturer to manufacturer. Therefore, it is impossible to accurately measure insulin by using measuring devices made for one brand and size of syringe when changing to another brand and size of syringe. I have found that the best way to handle this minor problem is to consistently use the same brand and size of syringe and always keep an extra package of syringes just in case the neighborhood pharmacy should run short.

Comments from the Editor

Some questions we received regarding the safety of insulin injection follow:

When I take my shot, will it hurt me if there are a few air bubbles in the insulin?

Relax, a few air bubbles in the insulin you inject will not hurt you. Air bubbles will only reduce the amount of insulin that is administered.

How will I know that there is no air in my syringe before making the injection?

As a blind diabetic, I have, for several years, successfully drawn my own insulin without air bubbles. I mix the insulin and when I draw from the first vial I draw a little insulin into the syringe, then inject all of it back into the vial. I can feel the air bubbles as the insulin returns to the vial and sometimes I can hear them. This procedure is repeated three or four times followed by flicking the syringe several times with my fingernail to dispel any air present. I then slowly draw the full amount of insulin needed from the first vial. When I draw insulin from the second vial I slowly draw the exact amount needed and then again flick the syringe a few times with my fingernail. I have had this checked several times and there have never been air bubbles present. Air that is in the syringe needle is injected out of the needle during the procedure used with the first vial of insulin.

What are the chances that I might insert the needle into a blood vessel?

Your chances are minimal since injection sites are in fleshy areas. Insulin needles are short and the worst you could do would be to hit a small capillary which would result in a slight area effused with blood called a hema-

toma. Again, it is unlikely that the needle will be inserted into a small blood vessel, but insulin entering the blood stream via a capillary would not be in a dangerous amount.

Blindness does not have to be the great tragedy that it is often thought to be. By using alternative techniques, blind diabetics can independently manage their own diabetes and lead active lives in the mainstream of society.

Caveat Emptor

by Susan Manchester



Susan Manchester, Legislative Chairwoman, Diabetics Division of the **National Federation of the Blind**, is a long-term diabetic and tells why it is important for anyone, but especially a person with diabetes, to carefully choose a physician.

This may seem an odd expression to use in reference to choosing a physician to ensure getting the best possible medical care, so perhaps I should explain. Caveat emptor is part of a Latin expression meaning "Let the buyer beware", which has survived from the Romans, and is usually applied to making a careful choice when buying goods.

However, I feel it is more appropriate when applied to making a choice of doctors, particularly when one is a diabetic. In a recent issue of *The Voice of the Diabetic*, we read of a young lady with multiple problems, many of which could have been avoided; she states in her article, "I realize now that I did not have the best treatment possible."

I too, have had some treatment within the past year that I would have chosen to be different, had I known then what I know now. I broke my hip in a fall in Sept., 1987. This occurred while I was on a trip away from home, and I was taken to a local hospital and placed in the care of totally unknown doctors. Surgery was performed, and the broken hip was "pinned", which involved placement of four long screws through the femur, and into the femoral head, joining the break. A week later, I was sent home, and began a long convalescence, with no weight bearing allowed on that left leg. I was, of course, back in the care of my tried and true internist, and had been referred to a local

If you or a friend would like to remember the National Federation of the Blind in your will, you can do so by employing the following language:

"I give, devise, and bequeath unto National Federation of the Blind, 1800 Johnson Street, Baltimore, Maryland 21230, a District of Columbia nonprofit corporation, the sum of \$_____ (or "_____ percent of my net estate" or "the following stocks and bonds: _____") to be used for its worthy purposes on behalf of blind persons."

orthopedist. My internist told me frankly that he did not expect the bone to heal successfully, as I had been a diabetic for forty years, and had other complications associated with poor circulation. The orthopedist took a "wait and see" attitude. Following five months of no weight bearing, during which I developed carpal tunnel nerve impingement from constant use of a walker, the x-rays finally showed non-union of the bone, and I was told that further surgery to remove the screws and do a total hip replacement would be necessary.

I told the orthopedic surgeon that this surely was no fault of his, but should an occasion similar to mine ever occur, I would hope he would do the hip replacement, and spare the patient the experience I had endured. He replied that he would do absolutely the same procedure the other surgeon had performed. He then called his associate, explained my case, and asked what he would have done. His reply was "The exact same procedure." I suggested that they might be better served by listening to the Internal Medicine consultants, only to be told, "No, that was their informed opinion, based on years of experience." I then commented that they should appreciate that a diabetic of 40 years' duration, who was blind and had cardiac disease as a result, should be considered a poor risk indeed, for a bone union dependent on good circulation to the area. I couldn't budge either of them in their conviction.

So I say to all of us who are diabetics, be prepared to question, and to argue, if need be; this is, after all, about our own bodies. Insist on all the information, and make an informed decision, weighing pros and cons with your doctor.

No physician should be too egotistical or too hurried to take a little time to discuss important aspects of your condition with you.

Also, don't feel compelled to settle for a doctor in whom you have doubts, just because of insurance restrictions or similar limitations. Make inquiries until you find someone you trust. I have known people who made a choice of their doctor based on the fact that the doctor's office was within walking distance. This could prove to be a fatal error. Remember, the services of a doctor are probably the most important purchase you will ever make, so remember, Caveat Emptor - let the buyer beware.

Drug May Aid in Stopping Diabetes

BAR HARBOR, Maine (AP) - Studies in diabetic mice suggest that a drug that stimulates the immune system may stop the destruction of insulin-producing cells and thus prevent diabetes, a researcher said Friday.

Stress and viral infections also have been found to affect the development of diabetes, said Edward Leiter, a geneticist at The Jackson Laboratory in Bar Harbor.

Leiter said he and his colleagues had expected that an immune-stimulation drug would make diabetes worse in the mice they studied. Instead, it apparently brought the diabetes under control.

The form of diabetes that requires insulin injections is thought to occur when the body's immune system attacks its own insulin-producing cells, or beta cells, in the pancreas, Leiter explained.

The drug, a substance called interleukin-2 that occurs normally in the body in small amounts, activates the immune system cells and thus should have accelerated the destruction of beta cells, Leiter said.

It appears, however, that the drug activated some kind of immune cell that has the normal function of preventing the body's defenses from attacking the body itself. In the mice, it blocked the destruction of beta cells.

This finding—in mice specially bred to have diabetes—may not hold any immediate importance for humans, but it does shed light on the basic processes underlying the development of diabetes, Leiter said. Mice and humans share many genes and a variety of diseases.

Leiter has determined that in the mice he studied, a strain called non-obese diabetic or NOD, at least three separate genes seem related to the development of diabetes.

He has also found that stress appears to aggravate the development of diabetes, which occurs only in the males of that mouse strain.

Mice that were kept in standard, crowded cages with other males and were subjected to the stress of having blood and urine samples taken periodically have about a 50 percent chance of developing diabetes.

In contrast, individual male mice left alone in a cage with a female for breeding developed diabetes at about half that rate, Leiter said.

Leiter's work is among many recent studies that are helping to clarify the

PREPARATION AND THE CRITICAL NUDGE

by Marc Maurer



Marc Maurer, President, National Federation of the Blind delivers the keynote banquet address to more than 2500 blind citizens at the 1988 national convention of NFB in Chicago, Illinois. He explains the need of revolutionizing society's standard mind set concerning blindness.

Lord Bolingbroke once said that history is the teaching of philosophy by examples. Each historical figure is remembered for expressing in action a certain philosophy. The important moments in time have become significant because of actions taken by individuals which have represented specific points of view. However, those events which have helped shape the course of history have had more than one element. There are competing philosophies—each seeking ascendancy. The educator Lewis Mumford wrote that in human experience there are singular moments when the merest nudge can move mountains and change the course of history. These points in time are critical, because it is only then that the balances between compelling, competing ideas—alternate philosophies—can be changed by concerted effort or individual acts of courage. At such times, as Andrew Jackson observed, one human being with courage makes a majority.

These critical points in history do not occur by happenstance. They must be created deliberately, and with strenuous effort. A philosophy which has guided a government or shaped the mental processes of a social order cannot be fundamentally altered easily or simply. Regardless of the seeming spontaneity and suddenness of an event, no philosophy which competes with the established norm can be fixed in the hearts and minds of a society without an accumulation of advance preparation. Only with such preconditioning can a new social balance be reached. But after the old order has been sufficiently challenged that a new equilibrium has almost been achieved, a small choice (a simple decision—or the lack of it) may determine the course of a life or the destiny of a people. Change ordinarily evolves over hundreds of years, but when a fundamental

difference in the way we view the world comes quickly (even though necessarily with a considerable amount of advance preparation), the shift in our thinking is called revolution.

These principles apply not only to societies and governments but also to individuals and social movements as well. A change in direction often takes place not because the governing institutions have had a change of heart, but because the pressure brought to bear by individuals organized for collective action has added the necessary impetus. The critical point for the reordering of basic values is (regardless of appearances) never reached individually or spontaneously. The times are right for revolution only when individuals have organized to create the social climate which will permit it. Even when events follow one another with such rapidity that a fundamental alteration is made in a relatively short time, the causes can be found much earlier. Slavery was legal in the United States in 1861. Four years later, after a war had been fought, the Thirteenth Amendment (prohibiting slavery) had been ratified. However, the seeds of the change are discernible almost a hundred years earlier in the slavery provisions of the Constitution, adopted in 1787.

We express (each and every one of us) our philosophy in the actions of our daily lives. As a movement we declare our principles not only in the words we use but also in the steps we take to put those words into practice. The individual act contributes to the totality. The philosophy of a movement is a composite. It is the combined hopes and dreams of thousands of individuals—but it is more than that. It is a shared ambition, a collective determination.

The philosophy of the National Federation of the Blind is simple—and (at least we are sometimes told) revolutionary. We believe that blind people, organized throughout the land, have the strength and purpose to change the course of history—at least their own history. We believe it is our responsibility to make it happen—and we accept the challenge, with the full knowledge that the moving force is, and must necessarily be, the National Federation of the Blind.

The conviction that we the blind have not only the ability to determine our own future but also the right to do it—the right to be the principal architects of the programs and activities which affect our lives—is the very essence of our movement. It is the central thread which has run through the "Federation from the day of its beginning. When the National Federation of the Blind came into being in 1940 under the leadership of Dr. Jacobus tenBroek, the doctrine of self-determination was an unquestioned given. This same spirit of independence has been the prime factor in the building of the Federation from the forties to the present. The faith (in fact, the certainty) that our own actions can dramatically change the opportunities

available to us—a faith and a certainty so eloquently proclaimed in the speeches of Dr. Kenneth Jernigan—originally brought us together, sustains us today as a movement, and will give us the strength we need for the battles of the future. Without this unshakable core of belief and knowledge, we would cease to be the powerful movement which we are and simply become one among the many who attempt in this way or that to assist the blind. As it is, we are unique—the strongest force in the affairs of the blind today. We are the National Federation of the Blind.

Implied in the thesis that we are responsible for our own destiny is an alteration in the traditional role of the blind. All segments of society—the blind, agencies serving the blind, and the public as a whole—are involved; and when we have completed our work, each of us (and each component of the social order) will be different.

Some time ago I received a letter from a disabled graduate student who asked that I provide him with incidents involving disability and humor for a college research paper. His request said in part:

I am a graduate student at Arizona State University. At present I am involved in a research project and would appreciate your assistance. I am looking at the dynamics involved in humor and disability. I am seeking jokes, cartoons, or personal accounts about the experience of being disabled.

Part of my interest in humor and disability stems from the fact that I have been disabled for twelve years. During this time I have found numerous situations in which humor has turned possible disaster into something I could put behind me. I feel that I cannot be the only one to use humor in such a manner and am asking others to share their experiences with me.

Perhaps the writer of this letter does not believe that the blind are a minority. One phenomenon associated with many minority groups is that the individuals comprising those groups often become the objects of humor. There are ethnic stories and racial slurs. There are also jokes about the blind. However, the humor is not really humor, and it demeans both the teller and the listener—both the majority and minority. It is always a put-down, and often an excuse.

There are some who will argue that raising an objection to a little humor is overreacting. "Surely," they will say, "you would not want to be oversensitive. Those who are unable to find humor in a situation take themselves too seriously. Being able to laugh at yourself demonstrates a sense of inner security. Those who cannot do this are touchy, insecure, and without a sense of humor."

To which I say, nonsense! Let those who say that a little innocent fun at the expense of the blind is harmless (and perhaps even admirable) consider the

(Continued on page 4)

role of the immune system in diabetes, he said.

For example, Michael B.A. Oldstone of the Scripps Clinic in La Jolla, Calif., recently found that infection with a virus could block the destruction of beta cells in NOD mice.

Leifer said viral infections stimulate the production of interleukin-2. Oldstone's infected mice might have produced more interleukin-2 and that might be the reason their diabetes was brought under control, Leifer said.

And Japanese researchers have found that NOD mice develop diabetes at a higher rate when raised in a completely germ-free environment.

It is as if the immune system, freed from the responsibility of preventing infection, becomes "introspective," looking for things in the body to attack, Leifer said.

(Note: This article appeared in the Rapid City Journal, Rapid City, SD, July 30, 1988)

New Insulin Absorbs Faster

Associated Press

NEW YORK — Scientists say they have developed forms of insulin that are absorbed more quickly after injection than current versions, holding promise of better treatment for diabetics.

Experiments in pigs showed the new forms are absorbed two to three times faster after injection than current rapid-acting insulins, researchers said.

That means they can better match the rapid rise in blood stream concentrations that non-diabetics get in response to eating a meal, researchers from Denmark and Britain wrote in Thursday's issue of the British journal *Nature*.

The work already has led to improved control of blood sugar levels in some diabetics, but the new insulins must be studied for possible side effects before their usefulness can be established, the scientists said.

To develop the new forms, researchers altered tiny portions of the standard insulin molecule to prevent molecules from clumping together.

(Note: This article appeared in the St. Joseph Gazette, St. Joseph, MO, June 16, 1988)



CRITICAL NUDGE

(Continued from page 3)

program "Saturday Night Live." On March 5th, 1988, this comedy show carried a skit depicting a blind man being interviewed about his blindness on a television talk show. This ostensibly humorous routine contains one of the most dismal and dreary accounts of blindness I have ever heard. Blindness is the overwhelming characteristic in the man's life. Nothing else really matters. Notice that in the midst of the gloom and the twisted mockery there is yet the positive language of hope—which only makes matters worse. In the Middle Ages it was considered amusing to decorate blind men's heads with donkey ears and make them fight at county fairs. The ears are absent, but the jeering and public ridicule are still with us—on "Saturday Night Live." Here are excerpts from the broadcast. The dialogue begins with the talk show hostess:

"You've still had a fulfilling life, right?" "Doing what," the blind man replies, "listening? Listening to a sunset? Didn't they tell you honey, I'm blind. Okay? Hello? Blind. Where are you? Can't see you."

"I understand that. But given everything, isn't blindness just one more obstacle to overcome?"

"Yeah, right. I'll tell you what. Why don't you try it for about a day and half?"

"I'm sure it's very challenging, but what about the positives? Your other senses are heightened, aren't they?"

"Oh yeah, yeah. They're great. I can smell a little better now. That really comes in handy on the subway every day. Not to mention the hearing, of course. Yeah. So let's figure this one out. Let's see, I can hear crickets chirping a little louder than you can, and you can see? Yeah, that sounds fair. That's a fair trade-off. Thanks, God!"

"You're a little bitter, Hal. No doubt about it. But you haven't let this stop you from leading a normal life."

"Well, yeah, I'm pretty much dead in the water, I'd say. Mostly I just hang around the house and drink a lot of beer. That's about it."

"You know something? You're a horrible man. Do you know that? A few weeks ago we had a blind horseshoe pitcher, and he was just wonderful. (Here the talk show hostess breaks into tears.) And then we had a blind sky diver, and he always managed to adapt, and he got out there in the world—"

"Well they're insane. Okay, honey? They've got no grip on reality. Guys, you're blind, okay? Calm down. Stop embarrassing the rest of us. I don't understand it. What do people want from us, anyway? Do you want us to perform for you? Is that it? I'll tell you what. Why don't I just do a little dance for you! Blind man dancing. Okay, is that good? All right. I'm sorry. I'll think of something to say that's nice for blind people. Okay? Something like, okay, if you go blind, it's not so bad. You get a nice tax thing, a little deduction there, and oh yeah, you can look right at an eclipse. That's no problem."

That is what millions of people heard

and saw less than six months ago on "Saturday Night Live"; and far from being funny, it is disgusting; it is sick; and it is a straight-out lie. Blind people (we are told) get a tax deduction. We drink a lot of beer—and sit at home. Even those of us who are successful (a success, it should be noted, which betokens insanity) have only been able to succeed by engaging in some sort of recreational pursuit. The responsibilities of citizenship, the participation in community activities, and the holding of a job are not even considered. If this is what passes for humor, forget it. If this is what we are supposed to cultivate to prove we are adjusting, we will remain unadjusted—and write a new script. We don't control the air waves; but we recognize a lie when we meet one, and we also know enough to avoid being conned into being satisfied with second-class status on the ground that we have a duty to demonstrate a so-called sense of humor. Again I say, forget it! We have put behind us the donkey ears of the Middle Ages and the donkey tails of "Saturday Night Live." We have thrown off the pathos and bitterness, the dejection and gloom, and the passive docility which have traditionally been expected of us. Instead, our mood is one of hope, accomplishment, and the joy of discovery. We know that with reasonable opportunity we can compete on terms of full equality in society, and we also know that with reasonable opportunity the sighted can come to accept us for what we are.

What is required is a redirection of public attitudes and beliefs—and remarkable as it may seem, one of our principal areas of effort must be with the very governmental and private agencies which have been established to help us do the job. The sad truth is that the agencies often have worse attitudes about us than do the members of the general public. They portray us as helpless and inept. An issue of the *Journal*, A District of Columbia newspaper, tells of a teen-age girl who wanted to help the blind. Influenced perhaps by the attitudes of those who work at the agency where she volunteered, she decided to write a cookbook for the blind. Sometimes misconceptions about blindness are veiled and hidden, but not this time. This is the way the article describes her work:

Cooking hurts when you're blind. It is a vexing daily chore for America's eleven and one-half million blind and visually impaired populations, according to the American Foundation for the Blind. For many of them, it is a frustrating and defeating stumble around the kitchen for sustenance conducted dimly or in total darkness by people who long to be as self-sufficient as the rest of sighted America.

That's why seventeen-year-old Elizabeth Warshawsky plucks her heart strings with the recent publication of her Braille and large-print cookbooks for the blind.

The high-school student from Shaker Heights, Ohio, took two years to write and designing her cookbook, only part of a busy schedule of study and volunteer work at her local Society for

the Blind.

(The article continues with quotes from the student.) *"I couldn't get 'The Miracle Worker' out of my mind," said the high school senior, in a telephone interview. "I saw the movie in the second grade, and it changed me. It made me see how we could help the blind by just taking time to think about them, to work with them a little."*

So (the article continues) in ninth grade this idea comes to me," she explained. "I saw how the blind people I volunteered for had such a terrible time with food. It's so frustrating and dangerous in the kitchen for them; they solve the problem of eating by getting into a rut, sticking to apples, lunch meats, and sandwiches; and malnutrition is a real problem for many of them."

"But what really excited me," she recalled, "was all this new food that can be easily prepared, food that is nutritious and hot, the kind of foods blind people once had—when they could see."

So the article says, and it is hard to know how to respond to such a messy mishmash of misinformation. Has this student really met blind people? What influences were brought to bear to teach her that the ordinary kitchen is for the blind a dangerous and frustrating place, a veritable minefield of terror and booby traps? How did she conclude that malnutrition is a serious problem for those of us who are blind? Did the local agency for the blind (reinforced by the American Foundation for the Blind) give her the impression that blind people stumble around the kitchen, feeling defeated? No matter how it came to be, the misunderstanding of blindness has now been learned. A book has been written containing the most blatant misrepresentations about blindness. Opportunities which might have been available will never be—and it has all been done in the name of helping the blind. Instead of this half-baked collection of underdone ideas, we prefer reality and a more positive view of our prospects and possibilities. We reject this gloomy assessment, along with the bitterness and blight traditionally associated with blindness. Rather, our mood is one of hope, accomplishment, and the joy of discovery. We believe that we who are blind, organized throughout the land, have the strength and purpose to change the course of history—at least our own history. We believe it is our responsibility to make it happen—and we accept the challenge, with the full knowledge that the moving force is, and must necessarily be, the National Federation of the Blind.

A company calling itself Safe-E-Scape of Tampa, Florida, writes to tell us that it has devised a set of burglar bars, which are most appropriate for the blind. These bars, which fit on the inside of the window, have a locking mechanism, which is opened without a key. In writing to me Safe-E-Scape says: "We feel that this product can be very important to blind people everywhere and of every economic and social level. We are, of course, a pro-profit concern and are first seeking customers who (we feel) most need

and will best accept our product."

That is what they say, and I ask you: Why are these burglar bars particularly appropriate for the blind? Why more for us than for others? Are we less able to protect our property than the ordinary sighted citizen? Is there a concerted effort by criminals to seek out the homes of the blind? As far as I know, the property of blind people is not more valuable than the property of the sighted. Or, is the reason for selling this product to the blind contained in the fact that there is no key? If the blind are more helpless than others, there is a need for greater protection. But the very helplessness of blind people contains inherent disadvantages. Those who are helpless may misplace a key or (worse still) may not be able to use it if it is not lost. These notions are all contained in the advertisement for the special burglar bars for the blind.

And they are also contained in a bill considered by the House of Delegates of the 1988 Maryland General Assembly. The bill (which embodies the inherent assumption that the blind and other so-called "vulnerable groups" need special, segregated laws to protect them) was entitled "An Act Concerning Crimes Against the Elderly and Vulnerable." The language of this legislative measure leaves no doubt as to what is meant by those who are "vulnerable." It says, in part:

The maximum sentence allowed by law for commission of any crime of violence may be doubled for commission of that crime of violence against a person who is: (1) 60 years old or older; (2) Blind; (3) Paraplegic; or (4) Quadriplegic.

According to this bill, if you are blind, you are more vulnerable (in fact, twice as vulnerable) to crimes of violence than other people are. But our experience teaches us otherwise. Blindness does not mean the keyless burglar bars or extra legal protection is required. We are able to live in the world as it is. I am pleased to say that the bill for the vulnerable died in the Maryland legislature. The views of the Federation helped kill it, and we hope that the misunderstandings about blindness which it represented are also on the way to being killed.

In our organizational efforts and our daily activity our mood is one of hope, accomplishment, and the joy of discovery. We believe that we who are blind, organized throughout the land, have the strength and purpose to change the course of history. We believe it is our responsibility to make it happen—and we accept the challenge, with the full knowledge that the moving force is, and must necessarily be, the National Federation of the Blind.

Traditionally those who seek to tell the story of blindness exaggerate and distort. They tell us that blindness alters the mental processes—that we who are blind are characterized by heightened sensitivity, extreme joy, and deep gloom. There is, for instance, the report some time back in *People Magazine* concerning a blind child who became so depressed while attending a school for the blind that he forgot how to smile. He had to be taught how to move his

face.

However, as we know from our own personal experience, blindness and depression are not necessarily synonymous. Nor (as we can testify) does blindness carry with it some of the other peculiar results, weird side effects, and odd-ball associated characteristics which some have claimed. In the book *And There Was Light* by the blind author Jacques Lusseyran, we find this astonishing passage: "Shortly after I became blind, I felt indescribable relief, and happiness so great it almost made me laugh. Confidence and gratitude came as if a prayer has been answered. I found light and joy at the same moment, and I can say without hesitation that from that time on, light and joy have never been separated in my experience."

To which one is tempted to respond: Yuki! One blind person could not move his face; the other felt relief and happiness. The only way I know to reply to such fantasy is by calling on the poets. If memory serves me, James Russell Lowell said something to this effect:

*Here comes Mr. Poe with his raven,
Like Barnaby Rudge;
Three-fifths of him genius,
And two-fifths sheer fudge.*

I would agree with Lowell, but I would change the ratio.

National Industries for the Blind, the agency which distributes millions of dollars worth of government contracts to sheltered workshops for the blind, has recommended that a special sand paper-type material be attached to the floor in buildings where blind people walk. The blind (or so National Industries for the Blind apparently believes) cannot effectively get around by any other method and should follow the sandpaper to find their way.

Then, there is the opinion of a researcher into low vision, reprinted some time ago in an issue of the *Architectural Record*. As you might expect, the findings of this researcher are couched in terms of architectural barriers. However, the conclusion reached is, to say the least, astonishing.

One of the most difficult architectural barriers faced by partially sighted persons (the publication says) is locating a rest room in a public building and determining whether it is for men or for women. This problem can be easily solved by affixing panels to rest room doors in such a way that visually impaired persons can readily identify the facilities. Those on men's rest room doors should be an equilateral triangle with a vertex pointing upward, and those on women's rest room doors should be a circle. The edges of the triangle should be one foot long, as should be the diameter of the circle, and all panels should be one-quarter inch thick. The color and gray value of these geometric figures should be distinct from the color and gray value of the doors. (I interrupt to ask you to disregard the hidden Freudian pornographic symbolism contained in this treatise and to say that there are other (possibly even better) ways of determining which bathroom is which. But

back to the article.)

If this were done (it continues) even the totally blind could touch the edge of a panel and easily determine whether it is straight or curved.

As I ponder this report, I confess to a certain curiosity. Are the geometric shapes intended to represent the people involved—men triangular with straight edges, vertex pointing upward; and women circles with lots of curves? It is embarrassingly suggestive. Let me simply leave it at this: although it is often important to find a bathroom, most blind people seem to manage; and I believe it is a foolish and overdramatic exaggeration to describe the matter as one of the most important problems faced by the blind.

Shortly before last summer's National Federation of the Blind convention an item appeared in the *Honolulu Advertiser* which declared that there are characteristics of blindness which are advantageous in marriage. Here is the item in full:

Marriages among blind people last longer statistically than marriages among people with good eyesight. Or so our Love and War man has been informed. He doesn't doubt it. It's common knowledge that the blind tend to be better lovers than the sighted. For two reasons: 1. It's quite comfortable for them to communicate with their hands. 2. And, they make love with inner visions of each other, which remain forever as they so desire.

So there you have it. You may have been under the impression that blind people were just like everybody else except that we can't see. Not so! We have the ability to communicate with our hands—and besides, there is that special inner vision which we conjure up when making love. When reading this piece of so-called news from the *Honolulu Advertiser*, I wondered where the reporter got his information. In my experience with thousands of blind people (some of whom have attended conventions of the National Federation of the Blind), I have reached the conclusion that mating patterns of the blind do not vary substantially from those of the larger society. Let any reporter interested in field testing come to this gathering of blind people from throughout the nation. I suspect that the research will show that we have about the same experience (and the same attributes) as others—just as loving, just as bad, just as wonderful.

The Queen's University of Belfast has a program for teaching the blind about dentistry and oral hygiene. There is even a kit with models and tape recordings. The brochure has this to say about the course.

The Queen's University of Belfast Touch Tooth Kit has been developed by the Department of Pediatric and Preventive Dentistry within the University.

It is a complete dental health programme for the visually impaired.

It includes the smells and sounds of the dental surgery, large models for the student to feel what he is learning, and a complete set of Teachers' Notes to lead them through an up-to-date programme of dental health education.

Why anyone would want to experience the smells of dentistry without being compelled to do so is something I can't understand. Why a university should think that blind people need the sound of the dentist's drill, the spicy aroma of tooth decay, and the feel of a deteriorating molar is beyond comprehension. Perhaps the designers of this course have concluded that the psychological stresses for blind people have been too great. Consequently, they may have decided that the blind are abnormally interested in the bizarre. How else can the existence of this dental education program for the blind be explained? Why is the ordinary dental hygiene program not enough? Most of the blind people I know have teeth, and the toothbrush is not an unknown quantity. I venture to say that blind people are as aware of dental hygiene as the sighted are. If the message were not so destructive, it would be amusing. The basic assumption is that blindness necessarily means diminished ability, that we do not have the capacity to learn with the ordinary tools in the usual way. As with so much else, we reject this assessment. Rather, our mood is one of hope, accomplishment, and the joy of discovery. We believe that we who are blind, organized throughout the land, have the strength and purpose to change the course of our history—at least our own history. We believe it is our responsibility to make it happen—and we accept the challenge, with the full knowledge that the moving force is, and must necessarily be, the National Federation of the Blind.

Agencies for the blind have been established to provide services to blind people. However, the actions of the officials of some of these agencies frequently represent the most difficult problems that we face. It is unfortunately too often true that the agencies established to serve the blind create more problems than they solve—more than would have existed if they had never been there at all.

Last year a supervisor in the vending program of the Division of Eye Care of the Department of Human Services of the State of Maine sent a written directive to all blind vendors in the state expressing her opinion that the blind are not only incompetent but at least as immature as small children. Here, in part, is what she said:

It has come to my attention recently that some of you are not aware of the guidelines for operators regarding dress and hygiene. Although this is not a formal dress code, excessive deviations deemed by the program supervisor to be detrimental to the image which we want to convey of viable small business people in the community will be noted and may become part of a corrective action procedure. (I interrupt to say that this portion of the document seems clear enough. There is no formal dress code. However, if you do not follow the informal dress code, action will be taken against you. But back to the text.)

Jeans are permissible as long as they are in one piece, clean, and fit properly. (Again, I ask: Why were such instruc-

tions given? In the vending program, blind vendors are supposedly operators of independent small businesses. Is it proper for a state official to send a memorandum to licensed vendors telling them to wash their jeans? What does it mean if a state official thinks it is necessary to instruct an entire class of people that the pants they wear should be in one piece? These are the directions ordinarily reserved for small children or the mentally defective. However, this is not all that the state of Maine thinks should be addressed to independent blind vendors in its program).

Clothes should, of course, (the document continues) be clean and complimentary. Beyond that, the clothes you are wearing should not be provocative in any way, by this I mean that there should not be a lot of bare skin showing (shoulders, low necklines, et cetera), fit should be good without being tight, proper undergarments should be worn, midriffs should not be bare. We are operating public businesses, not the bar at the country club.

I already mentioned (this official continues) that clean hair (washed several times each week) is essential. Hair style should be attractive and neat, whether long or short. This means that regular hair cuts are expected, no matter what style you've chosen. Facial hair is acceptable as long as beards and mustaches are trimmed and clean. Men should shave every morning unless they can demonstrate that their facial hair growth is not visible over longer-periods.

In order to eliminate unpleasant body odors, (this supervisor's letter goes on) a shower or bath each day and the use of deodorants is imperative. Hands should be washed with soap and water frequently and fingernails must be clean. Most people need to wash their hair at least every other day, especially in this type of environment.

Remember that this state official is talking to people who are supposedly operating their own businesses. Although much of the substance of her directive is objectionable, the primary problem is in the tone and spirit. Of course, one should wash one's hands and wear clean underwear, but the condescending tone of the order is intolerable. Is it any wonder that the blind of the state rose in condemnation of such statements? Within a few weeks the directive of the vending supervisor was rescinded. The reason for the change is not hard to find. The members of the National Federation of the Blind of Maine had taken concerted action and had said, "Enough!" The result is indicative of what is happening throughout the country. Our mood is one of hope, accomplishment, and the joy of discovery. We believe that we who are blind, organized throughout the land, have the strength and purpose to change the course of history—at least our own history. We believe it is our responsibility to make it happen—and we accept the challenge, with the full knowledge that the moving force is,

(Continued on page 6)

CRITICAL NUDGE

(Continued from page 5)

and must necessarily be, the National Federation of the Blind.

Sometimes there are incidents which underscore with dramatic force the urgency of the work we do and the magnitude of the task still left for us to accomplish. Recently a person flying from Baltimore to Indianapolis on USAir, found a paper attached to his ticket. It said "Unaccompanied child." Written across the face of the document was the word "blind." There were spaces on the form to indicate who would be responsible for the traveler, both at the origin and destination of the flight. The person flying that day was the president of the National Federation of the Blind. I was that person. I had been classified automatically in the same category as small unaccompanied children.

Less than two months ago a totally blind woman, Shelia Marque, called to ask for the help of the Federation. She has been blind for less than a year. Her husband is a custodian at the First United Methodist Church in Chanute, Kansas. The Marques live in the country with their three children, and Mrs. Marque is a student, studying elementary education, at a nearby college. Although she has qualified for student teaching, there has been no placement. Faculty members at the university tell her that it is not possible to find a teacher willing to work with her.

Sometimes Mrs. Marque rides into town with her husband. While he performs custodial duties at the church, she explores the town and practices with her cane. When the travel is finished, she returns to the church to wait for her husband to complete his tasks. Mrs. Marque called because of

what happened to her when she wanted to attend a funeral in the church. She was told by officials of the church that she should not be in the building because it was bad publicity to have a blind person on the grounds. She called us to ask if someone could do something about this discrimination. As she said, "I have been blind less than a year, and all I have faced are setbacks." And where, one wonders, shall the blind worship if not at church? Where indeed!

What a picture! The blind are ridiculed on "Saturday Night Live." We need separate burglar bars and cookbooks. There should be special laws to protect us. We forget how to smile and must be taught to move our faces—or alternatively, we smile constantly and are surrounded by light. We must have sandpaper on the floor to guide us, and circles and triangles on the bathroom doors to intrigue and inform us. We must be told when to change our underwear and wash our hands. We need to be taught the smells of the dentist's office. We make good lovers because we know to use our hands and have inner vision. And finally, we are not even permitted to come to the church. Is this a picture of gloom and despair? Not at all.

We are better off today than we have ever been before. We recognize the prejudices and misconceptions which we face, and we are organized to do something about them. The fact that we understand and catalog does not mean that we feel bitterness, defeat, or despair. When we identify these injustices and bring them into the open, the very fact of doing it begins the process of change and improvement. Yes, many of the governmental and private agencies are negative in their outlook

and are still mired in the past, but others (a growing number) are working with us in progress and partnership. And increasingly throughout the country we are establishing training programs of our own to serve as models and touchstones.

Likewise, although the media and the public at large are still characterized by outworn notions and lack of information about the true nature of blindness, the progress toward enlightenment and change has been amazingly rapid, and it continues at an accelerating pace. More people today are with us than against us, and the balances are constantly shifting in our favor. Invariably when the press and the public understand, they are with us.

Be we do not need to rely on logic and statistics to see what we are achieving. Look about you! Never before in the history of the world has such as assemblage as we have in this room tonight been brought together. In the presence of this determined, united multitude, can you doubt our ultimate success? In the final analysis our future will be what we determine it to be—what we are willing to work, plan, and sacrifice to make it be. We can ask for no more, and we can accept no less.

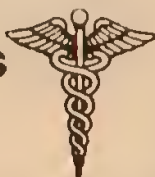
There are critical times for a nation, a social order, an individual, or a movement—times when a nudge or a single act can make the difference. But no such critical time has ever occurred without extensive advance preparation. The final act may precipitate the event, but the act cannot occur without all of the others which went before it. Which step is more important—the first or the last? The answer, of course, is that neither is more important. Both must be taken for either to be significant or

at all memorable. And there are also the step between—the ones we are taking now—and have been taking through all the years since the national Federation of the Blind was established. Changes in the social fabric can only be made after individual effort has created the climate and prepared the way, and in the complexity of present society individual effort is lost unless it is joined in concerted action. This is a lesson we have learned well—and we have also learned the value of the first step, and patience, and the long view. And something more! We have come to understand the importance (indeed, the necessity) of knowing when to refuse to wait, when to reject patience, when to say no to delay—the courage and judgment to insist that freedom and opportunity must be now, not tomorrow! All of this comes with the maturing of a movement, and every movement must either mature or die. We have no intention of dying. Rather, our mood is one of hope, accomplishment, and the joy of discovery. We believe that we who are blind, organized throughout the land, have the strength and purpose to change the course of history—at least our own history. We believe it is our responsibility to make it happen—and we accept the challenge, with the full knowledge that the moving force is, and must necessarily be, the National Federation of the Blind.

The philosophy of our movement is expressed in the individual actions of each of us—and make no mistake! Act we will! Our prospects have never been as bright; our determination has never been as strong; and our goal has never been as clear. My brothers and sisters, let us march together to the future!

Ask Dr. James

by Ronald James, M.D.



Ronald James, M.D., long-term insulin dependent diabetic, directs Midwest Diabetes Treatment and Education Center, Columbia, Missouri. Dr. James is also the Medical Director of the Central Missouri Diabetic Children's Camp, Inc.

For the past 37 years, Dr. Ronald James has been an insulin dependent Type I diabetic. He is now director of the Midwest Diabetes Treatment and Education Center in Columbia, Missouri, and is the medical director of the Central Missouri Diabetic Children's Camp Inc.

Please note: if you have any questions for Dr. James, please send them to the editor. The only questions Dr. James will be able to answer are the ones used in his column.

I have obesity onset diabetes and want to know why excessive fat causes diabetes?

Excessive fat causes diabetes because it makes one resistant to insulin. If one has a limited ability to produce insulin he may have enough insulin when he is of normal weight. However, when he becomes overweight he will become resistant to that insulin and will require more insulin than he is capable of producing. At least one of the mechanisms involved is that the number of insulin binding sites per cell in the body decreases with increasing obesity. Thus it takes more insulin to get the same effect and may cause diabetes to be manifest in those who have a limited ability to produce insulin.

When and how was insulin discovered?

Insulin was discovered in the early 1920's and was first used to treat a human diabetic on January 11, 1922. Many different investigators had been working on the problem but those who finally were able to demonstrate that insulin was the factor deficient in diabetes, and that administration of it could lower blood sugar to relieve the symptoms of diabetes, were Dr. Frederick Banting and a medical student, Charles Best. Although other investigators had done experiments with dogs and had given them pancreatic extracts, Banting and Best were the first to demonstrate that this lowered blood sugar. They did this by removing the pancreas from dogs to make them diabetic and then injecting these animals with pancreatic extracts which we now know contained insulin.

What is Diabetes Mellitus?

Diabetes Mellitus is a group of diseases all of which are manifest under certain conditions by high blood glucose levels. Diabetes is basically divided into two types, Type I and Type II. In Type I the individual makes an inadequate amount of insulin or as in many cases no insulin. It is felt that this is caused by the production of

antibodies which destroy the insulin producing Beta cells in the pancreas. Type II diabetes produce insulin although the supply may be somewhat limited. A major factor in Type II diabetes is resistance to insulin.

Although we usually think of diabetes as a disease in which the sugars are elevated, and they usually are, many other chemical processes in the body are abnormal because of the lack of adequate amounts of insulin. These include fat and glycoprotein metabolism.

Can diabetes be detected prenatally? Or can it be detected by amniocentesis in the fetus?

At the present time there is no way to detect diabetes prenatally, that is in the fetus. In fact it is extremely rare for a baby to develop permanent diabetes during the first days of life. Therefore detecting it prior to birth would be highly unlikely even if we had a test for doing so.

How is insulin made?

I assume that you are asking how insulin commercially available for the treatment of diabetes is made. Several methods are used. First insulin is

(Continued on page 7)

My Children Are Healthy and I Have Diabetes

by Tracy Bitter Pressly



Tracy Bitter Pressly has been diabetic for the past 23 years. Tracy tells how the nine months of pregnancy for the diabetic mother is an exciting, emotional, and rewarding time. She tells of the importance of spending time in caring for the expectant mother and the unborn child. Tracy says, "Believe in yourself and your doctors and together you can work towards a happy ending." In picture: Tom and Tracy Pressly with their children Catherine and Thomas.

The nine months of pregnancy for a diabetic mother is an exciting, emotional and rewarding time. I know first hand. I am a diabetic and have been, for the last 23 years of my life. I am also the mother of two healthy children, a girl and boy.

When I first found out I was pregnant I was thrilled with the idea of being a mother to a wonderful baby. I was so caught up in the excitement that I failed to realize how much time would be spent caring for my health as well as the health of my unborn child, over the next nine months. My endocrinologist (diabetes specialist) as well as my obstetrician were well aware of the risks in a diabetic pregnancy. I must admit, I couldn't have gone through both pregnancies without their help, support, and advice of my physicians. They made me realize how very important it was to have good blood glucose control now and throughout my pregnancy. They were quite supportive and let me know that if I put my mind to it I could control my diabetes and come out with a healthy baby. What a wonderful thought!

The first trimester (1st three months) was a very trying time. I was constantly tired and drained of all my energy whether I had a busy day or not. I knew I would have to force myself to get some exercise to control my weight and glucose. I knew from research that diabetics tend to gain a lot of weight during pregnancy. I was determined not to lose too much of my figure. I entered an aerobics program and continued in it until I was about seven

months pregnant. I was able to keep my weight gain under control. I also spent lots of time watching my diet. Diabetics should certainly do that normally although it is even more important to eat well balanced meals when you are pregnant because of the increased nutritional demands of your own body as well as your baby's. The first trimester is the most important time in terms of the baby's development. I made sure that every bite that entered my mouth was nutritious. Amazingly, toward the end of the first trimester I had lots of energy and felt revived.

With that great amount of energy, I plunged into the second trimester (2nd three months.) I took up swimming. This aided me in maintaining a controlled weight gain as well as preventing wide swings in my glucose after meals. My weight slowly but steadily increased until the middle of this trimester. I gained nine pounds in less than a month. I realized that my weight was rapidly increasing and that really bothered me. However, I had been continually monitoring my blood sugar 4-6 times a day. I knew my diabetes was in excellent control even though my weight increased. I must say sticking my finger with a needle in order to get a blood sample that many times a day, was not fun nor easy to do, but it certainly paid off in the end. After a discussion with my physician, we decided that the weight gain stemmed from drinking whole milk because I thought it would be better for the baby. After cutting back my milk intake and continuing with aerobics and exercise my weight leveled off again. Most physicians prefer you to only gain about two pounds a month for the first six months. My doctors told me they would prefer that I only gained between 25-30 pounds by the end of my nine month pregnancy. I knew in approximately three months I would be holding a baby in my arms. Of course as a new mother-to-be I had lots of questions and concerns and probably the biggest was - am I ready for this big event? Whether I was or not there was no turning back at that point.

Starting at 24 weeks (3rd trimester) I was required to see my doctor once a week. However, it wasn't your ordinary office visit. I was required to have stress tests performed each week. Although it was a non-painful procedure it was time consuming. These tests were a precautionary measure to determine if my baby was active and moving in my womb. The doctors could also measure the baby's heart rate to insure there were no heart abnormalities. This usually took a minimum of two hours per visit and many times it took me 3-4 hours. There were times they couldn't find the baby's heart beat, there were also times the baby would not move and therefore my uterus would not contract, so the readings on the test

strips would be inaccurate. Needless to say, after six weeks of this sort of office visit I was an emotional, tired, frustrated mother-to-be.

Rarely do diabetics go to term with their pregnancies. Diabetics tend to have larger babies, and there is a high incidence of still-born babies who have gone the full 40 weeks of pregnancy. My physician had told me that I would have to have an amniocentesis performed at 38 weeks. This is where they stick a long needle into the mother's stomach in order to draw out some of the amniotic fluid. This can tell a doctor whether the baby's lungs are fully developed and hence ready for delivery. I was apprehensive about the prospect of having a long needle stuck into my stomach. However, with the support of my doctor, the nurses, and my wonderful husband, I overcame that hurdle too! It really wasn't as bad as I had made it out to be.

During this time I had several ultrasounds performed. This procedure is sort of like an x-ray except sound waves are used to visualize the baby. It was really exciting to see the baby's face, hands, feet, and count its toes and fingers. It made me that much more excited about having a baby. After 38 weeks it was time for the baby to arrive!

The birth was certainly not fun nor pain-free time, although it was quite exciting and rewarding. I was prepared for the birth experience because I had attended childbirth classes with my husband. I recommend child birth classes highly to anyone about to give birth to a baby. It is a review of everything having to do with childbirth and it certainly answers your and your husband's questions and fears. It is comforting to know more of what to expect. The birth experience with my first baby was a long and trying time. I progressed through labor rapidly and received an epidural which helped to ease the pain. However, my baby was not moving down the birth canal and out. I ended up pushing for 3 1/2 hours to no avail. Because my obstetrician could tell I was tired and because I was a diabetic we went ahead with a Caesarian Section. My baby girl arrived in this world on October 2, 1984 weighing 7 lbs. and 10 ounces.

Since she had been a C-section, when it was time to deliver my second baby we decided to have another C-section performed. Needless to say, the second time was much easier, with a lot less pain. I wasn't half as tired because I had not labored with my second baby. He arrived on April 4, 1986 weighing in at 8 lbs. and 11 ounces. I was elated as I now had one of each sex. He was not delivered until the 39th week because the amniocentesis had shown his lungs to be inadequately developed. Therefore, we had to wait another week which is the primary reason why he was larger than

my little girl.

I am quite pleased and thankful to the good Lord that I have two healthy, beautiful children. Pregnancy is certainly not for everyone, nor is it for every diabetic. As you can tell, it certainly takes a lot of one's time and energy to prepare for giving birth to a baby, especially by a diabetic. My suggestions and advice would be: 1) Don't go into pregnancy without deciding it is really what you want and you'll do everything possible in order to have a happy, healthy baby. 2) Find a doctor you can trust, respect and rely on. He or she will be extremely important during this time. If you have an endocrinologist it's a good idea to get his suggestion for an obstetrician. It is imperative that they talk and work well together for you and your baby's benefit. 3) When times get rough and you are tired of being pregnant, remember it won't be long until the baby gets here. Concentrate on the positive and remember, your spouse and your doctor can be of real help with beneficial advice and suggestions. 4) Keep your blood glucose under good control. It is imperative for you and your baby.

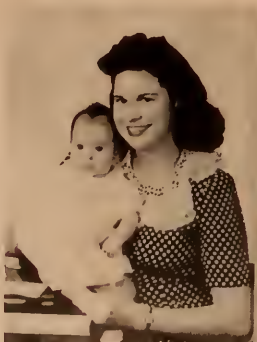
My hope is that you will be grateful for your pregnancy and the outcome will be as wonderful and joyful as you had wished for. Being a diabetic can hinder many but I believe it's all in your attitude. Believe in yourself and your doctors and together you can work towards a happy ending.

Ask Dr. James

(Continued from page 6)

extracted from the pancreases of beef and pork as a byproduct of the meat packing industry. Then it is purified and bottled for use. More recently, human insulin has been produced. Pork insulin can be converted to human insulin by changing one amino acid in the insulin molecule, making it identical to human insulin. This is referred to as semi-synthetic human insulin. Finally, human insulin can be made by genetically programming bacteria to produce a protein called proinsulin. This is a long chain of amino acids. Chemically the long proinsulin molecule is folded on itself so that the two ends are connected side by side by sulfur atoms. Then a piece called the connecting peptide is removed chemically leaving behind two chains of amino acids connected by the sulfur atoms. This is identical to human insulin and is referred to as recombinant DNA insulin.

Babies: The Miracle of Life?



Gertrude Bryant, proud mother, holds her 5 month old son Eddie. Isn't he a cute little fellow? 43 years later, Ed is editor for Voice of the Diabetic.

Can I Have a Safe Pregnancy and a Healthy Baby?

by Theresa Bunkers-Lawsen, R.N.,
and
Ellie Strock, R.N., B.S.N.

The baby boomers are blossoming. Everywhere you look you see pregnant women! It's downright infectious.

For women with diabetes, this is the best time ever to have a baby. And more than likely, pregnancies will be increasingly safe and healthy in the future.

Thanks to advances in medical care, women with diabetes now have about a 95% chance of having a safe pregnancy and a healthy baby. There is a secret, though. The key to this success is to work closely with your health care team before, during and after your pregnancy.

The most important thing to remember about having a baby is that your health and your diabetes control will directly affect the health and development of your baby. These effects will start well before you know you are pregnant.

Plan Well Ahead

This is why it is important to learn how to have a healthy baby even before you decide to become pregnant. If there is a chance you are already pregnant and you have not yet seen your doctor, you must see a doctor immediately.

The additional stresses on a woman's body during pregnancy will make you more likely to have some problems with your diabetes. These might include ketoacidosis (high levels of ketones in the blood and urine) and hypoglycemia (low blood sugars).

High blood pressure (hypertension) and toxemia (large amount of waste products in the blood) are also more likely during the pregnancy of a woman with diabetes.

These problems not only endanger your health, they increase the chance that your baby might have one or more of the following major risks:

- premature birth
- birth defects
- severe breathing troubles at birth
- jaundice (yellowness of the skin and eyes caused by a liver disorder).

Check Those Blood Sugars

Your doctor will ask you to do frequent blood sugar (glucose) monitoring during your pregnancy. It is not possible to maintain good enough glucose control using urine testing.

For your health and your baby's, your doctor will insist that you test your

blood glucose four or more times a day.

Keep Accurate Records

It is important to keep a good record of the results of these tests so you and your doctor can make changes as needed in your insulin dosage and meal plan. Women who take Type II diabetes pills need to take insulin during pregnancy. (Diabetes pills should not be used during pregnancy.)

Keep in mind that your insulin and food needs will change often during your pregnancy.

See Your Team Often

Pregnant women with diabetes are usually seen by a doctor and nurse much more often during pregnancy than are other women. These visits will probably increase to weekly or twice weekly by the eighth month.

If you have no serious medical complications and are controlling your blood glucose levels well, you will probably not be hospitalized early because of your diabetes. But if you or your baby show signs of medical problems, your doctor will probably hospitalize you or refer you to a medical center that cares for a large number of

pregnant women with diabetes.

Take Advantage of Resources

The National Diabetes Advisory Board recommends that all pregnant women with diabetes be cared for by a joint effort among obstetrician, pediatrician, primary care practitioner and an internist familiar with diabetes.

New medical knowledge, skills and equipment have made it possible to prevent many of the difficulties of diabetic births. It is usually possible to deliver a healthy baby even when the mother or baby has developed a medical problem.

And Take Care After Birth

After you have your baby, it is important to continue to work with your health care team. Insulin and food needs change after delivery, and it may take some time before your blood glucose levels can again be well controlled.

(Note: Reprinted with permission from the International Diabetes Center, Minneapolis, Minnesota.)

Your Pregnancy Checklist

What You Can Do:

1. Make sure your diabetes is in the best control possible before you become pregnant.
2. Stay in close contact with your doctors during the entire time you are pregnant.
3. If you are not already testing your blood glucose, ask your doctor or nurse to teach you how.
4. Test your blood glucose four or more times every day and record the results carefully.
5. Call your doctor if your blood glucose is high or if you feel even the slightest illness coming on. Test for ketones if your blood glucose is high or if you feel ill.
6. Carefully follow the meal plan your nurse or dietitian designs for you. This will give you and your baby the right nutrients.
7. Take your insulin at the right times and in the right amounts.
8. Make sure you get help from your husband, children, parents, friends, relatives or neighbors. You must have the time and energy to take care of your diabetes and pregnancy. Help from others can allow you the time and rest you need.

Take each day one at a time. Your daily efforts and cooperation with your doctors and nurses will be richly rewarded!

What Your Pregnancy Team Can Do

- 1. Design a meal plan suited to your needs and that will help control your diabetes.
- 2. Teach you how to test your blood and help you obtain a testing device and supplies.
- 3. Work closely with you to adjust your insulin, meals, and activity as often as is needed to keep your blood glucose normal.
- 4. Check your blood pressure at every visit and help you do everything possible to prevent or treat high blood pressure.
- 5. Act swiftly if you have a problem. Take time to answer all your questions and concerns.
- 6. If problems develop, refer you to a hospital or medical center experienced in and specially equipped to manage diabetic pregnancies.
- 7. After delivery, help you make the changes often needed to control diabetes when the stresses of pregnancy are removed.

Remember: Good planning and good medical care that involves you as part of the pregnancy team will pay off in a safe pregnancy and a healthy baby.

Eating for Two: Good Food for Your Healthy Baby

by Diane Dimperio, R.D.,
North Central Florida Maternity and
Infant Care and Family Planning
Projects

The time to start feeding your healthy baby is long before you become pregnant.

For women with diabetes, either Type I or II, good diabetes control before conception must include good nutrition. Once you stop using birth control and pregnancy becomes a possibility, nutrition becomes doubly important—in controlling your diabetes and in providing nutrient you and your baby will need.

Plan for Success

The critical times for the development of your baby are from 17 to 56 days after conception. Many women don't even know they're pregnant yet. But that baby is developing the critical organs that will determine a healthy or a not so healthy future.

We encourage you to plan your pregnancy thoughtfully. The better your diabetes is controlled and the healthier you are, the better the chances of a smooth pregnancy.

Women who are overweight should not plan to lose weight during pregnancy. Instead calorie levels should be adjusted to gain about 15 pounds. If losing weight is important, it is best to accomplish that before conception.

If you are underweight, you should try to gain some weight before conceiving a baby.

What Should You Eat?

Your dietitian will help you plan

exactly what is best for you. As a rule of thumb, about 15 to 20 percent of your calories should come from protein, 30 percent from fat, and 50 to 55 percent from carbohydrate. You should be eating at least 75 grams of protein each day.

Getting plenty of zinc and folic acid is important before and after conception. Good sources of zinc are meat, eggs, fish, poultry, especially liver and oysters; wheat germ; nuts, especially Brazil nuts, pecans, and cashews; and cheese, especially cheddar and swiss. Good sources of folic acid include wheat germ, liver, dark leafy greens, and peanuts.

Folic acid is easily destroyed by heat, so cooked foods are not good sources of folic acid.

One study has shown that women with diabetes seem to have lower levels of magnesium in their bodies during pregnancy. This may suggest that foods rich in magnesium should be used more often. Magnesium-rich foods include nuts, particularly almonds, Brazil nuts, cashews, peanuts, and filberts; wheat germ; whole grain oatmeal; and dried beans.

Need More Information?

These few guidelines should help you meet nutritional needs before conception. But, for an individualized meal plan, please be sure to consult a registered dietitian, preferably one who specializes in diabetes education.

(Note: Reprinted with permission from The International Diabetes Center, Minneapolis, Minnesota.)

Is Family History Important During Pregnancy? Is Biking Safe?

I've been hearing a lot about gestational diabetes. Should I be concerned about it, since my mother has Type II diabetes?

Gestational diabetes occurs during pregnancy and sometimes is called the "forgotten diabetes." It usually goes away after a woman has her baby. The baby will almost always be healthy and be born normally if the mother received good care and works closely with her care team to keep her gestational diabetes under control.

Screening for gestational diabetes should be a routine part of care for all pregnant women—not just those with family histories of diabetes. A simple blood test done between the 24th and 28th week of pregnancy is all that is needed to show whether or not blood

glucose levels are abnormally high.

If levels are high, your doctor may have you do a glucose tolerance test. This involves drinking a very sugary liquid and then having your blood tested several times during the next couple of hours to see if your body is able to use sugar the way it should. If the level of glucose in your blood stays high during this test, you will be diagnosed as having gestational diabetes.

It is very important that you work closely with your health care team to do whatever is necessary to control your blood glucose levels. It is unhealthy for both you and your baby when your blood glucose level is either too high or too low.

If gestational diabetes does occur,

your doctor will want to see you more often during your pregnancy. With special care, however, you and your baby have nearly the same chance for a safe and healthy delivery and birth as you would without diabetes.

After your baby is born, you will want to make sure you no longer have symptoms of diabetes. It's also a good idea to be checked for diabetes as you grow older. Avoiding obesity is also important, since the combination of gestational diabetes and overweight appears to lead to development of diabetes later in life.

—Richard Bergenstal, M.D.
International Diabetes Center

Should women who have diabetes

or gestational diabetes steer clear of stationary and regular biking during pregnancy?

Yes, as a general rule, I would advise against bicycling.

The easiest way to tell if an exercise is safe for the baby is to ask the mother to place her hand over her uterus and check if it feels tight or hard. If it does, she may be irritating her uterus with the exercise. Uterine irritability may cause a drop in the baby's pulse rate.

—Lois Jovanovic, M.D.
Sansum Medical Research
Foundation
Santa Barbara, California

(Note: Reprinted with permission from the International Diabetes Center, Minneapolis, Minnesota.)

Female Hormones Affect Diabetes

by Lois Jovanovic, M.D.

(Lois Jovanovic is a noted researcher in the field of diabetes and pregnancy. She is a Senior Scientist at the Sansum Medical Research Foundation in Santa Barbara, Calif.)

As a woman, you are blessed with female hormones that make you soft and feminine.

But these same hormones can upset both your emotions and your blood glucose control.

During each monthly cycle before menopause, your hormone production levels change. When the levels are at their highest, the female hormones may interfere with insulin action (increasing blood glucose levels and requiring you to adjust dosage). Dropping levels of these hormones also can make you moody and irritable (premenstrual tension), and can cause the stress that causes blood glucose levels to soar.

During the first half of your menstrual cycle, when your hormone levels are at their lowest, your insulin requirements, too, may be at their lowest. During the last week of your cycle, the hormone levels are at their highest and your insulin requirements need to be higher.

If you don't adjust your insulin dosage to meet these changes in hormone levels, your blood glucose control will suffer. Discuss these changing requirements with your doctor and

obtain recommendations on how to make insulin dosage adjustments to meet your body's needs.

When you monitor your blood glucose levels frequently during your monthly cycle, you will be able to see how your female hormones affect your control. With practice, you will be able to achieve a proper balance between hormones and glucose.

The two major female hormones are estrogen and progesterone. Your body starts producing them in quantity when you enter puberty and does not slow down production until you go through menopause.

These hormones are produced in your ovarian tissues, primarily to help you fulfill your child-bearing function.

Your 28-day menstrual cycle is necessary to give the egg a chance to be fertilized. If it is not fertilized, the lining of the uterus is shed (menstruation) before another egg is released from your ovaries.

To accomplish this cycle, the pituitary gland secretes large amounts of ovary-developing hormones about 14 days after your period begins. The ovary is nourished by these hormones and secretes large amounts of estrogen and progesterone.

If a fertilized egg does not implant itself in the lining of the uterus, production of these hormones slows considerably. Usually, menstruation will occur around day 28 as a result of reduced

estrogen and progesterone levels.

Here are some facts about female hormones:

Estrogen: This is the most important female hormone produced. It helps an egg to become fertilized and makes the lining of the uterus a rich, nourishing home for a fertilized egg.

Estrogen also makes your hair shiny and your skin soft; it fills out your breasts and rounds your hips.

In addition, estrogen is the key controller of bone calcium (which keep your bones strong). Estrogen helps bones to store calcium. Without estrogen, calcium will leak out of bones, no matter how much calcium is eaten (from foods or supplements).

When there is not enough calcium in bones, they become brittle. This condition is called osteoporosis. It particularly affects postmenopausal women, whose bodies no longer produce quantities of estrogen. That's one of the reasons why physicians prescribe estrogen-replacement therapy for some women during and after menopause. Calcium intake/supplements alone may not help at this time. Nutritionists now urge young women to make sure that they have an adequate intake of calcium (during the years their natural estrogen production is highest) to build up the strength of their bones.

Although estrogen-replacement therapy may slow the bone loss process, this treatment may produce such side

effects as water retention and increased blood pressure.

Progesterone: This is the second most important female hormone. After the ovary releases an egg (ovulation), progesterone is produced in the empty "sack" that once held the egg.

Progesterone levels are highest in your blood in the 10 days after ovulation. The egg travels down your Fallopian tubes to your uterus where it may or may not be fertilized by a male sperm. The main job of progesterone is to prepare the lining of your uterus to be shed (menstruation) if the egg is not fertilized.

Unfortunately, progesterone produces uncomfortable effects in the rest of your body, including swelling and bloating, acne, increased hair growth and mood changes. Also, high levels of progesterone can make your blood glucose levels rise.

Other Female Hormones: The pituitary gland secretes two hormones, follicular stimulating hormones (fsh) and luteinizing hormone (lh), to stimulate the maturation of eggs and the production of estrogen and progesterone.

(Note: Reprinted from *Diabetes in the News*, published by Ames Center for Diabetes Education.)

Diabetes in the Infant

by Richard A. Guthrie M.D., FAAP

University of Kansas Regional Diabetes Treatment Center of Wichita

Diabetes in the newborn presents special problems. It is a rare phenomenon and occurs in two forms. "Transient diabetes" of the newborn, that occurs most commonly in premature infants, can be severe but will usually improve or remit in a few days or weeks as the pancreas matures. A second form is a "permanent diabetes."

Transient diabetes of premature infants is a relatively common disorder in the newborn intensive care unit and can be precipitated or made worse by treatment with parental hyperalimentation or other dextrose-containing fluids. Some of our studies have demonstrated a lower glucose clearance rate due to lower insulin secretion rates in all infants. The rate is also lower with decreasing gestational age. Another problem is that small doses of insulin are put into the IV fluids to correct neonatal hyperglycemia. However, insulin can bind to plastic or glass resulting in a loss of available insulin. Insulin administration is also determined by the fluid administration rate. Rates may be too low to achieve appropriate control of serum glucose levels. A better way to administer the insulin is by a separate IV line "piggy-backed" onto the main IV. Several means are available to give the insulin

IV, but I prefer a unit of insulin per c.c. of saline, infusing the solution via a syringe type infusion pump. The high concentration and small surface area allow little binding loss and the 1 u/cc concentration allows for easy calculation of doses. Blood glucose levels can be monitored hourly by bedside monitors and the flow rate appropriately adjusted to control the problem.

Permanent diabetes in the newborn is rare and is usually more severe. This condition can result from genetic diabetes, perhaps with exposure of the fetus to a pancreatropic virus while in utero or to destruction or malformation of the pancreas. These infants usually have complete beta cell loss and are totally dependent on exogenous insulin for survival. Immediate recognition is mandatory for survival. Ketoacidosis will often develop within hours of birth and should be managed with IV insulin. After treatment, the infant should be given daily multiple doses of regular insulin. Dose schedules of intermediate acting insulin as used in older children and adults are based on a meal pattern of 3 meals plus snacks per day. Newborn infants do not eat that way and insulin must be administered as the infant eats. The infant will feed initially every 2-4 hours, day and night. Insulin should be given in a similar fashion (i.e. continuously to cover the milk intake). Activity is fairly predictable with short

awake and long sleep cycles, food intake is fairly even, and therefore, insulin should be the same. I prefer 4-6 injections of very small amounts of regular insulin per day in roughly similar doses with a total daily dose of about 1 unit/kg/day. This is a starting dose and must be modified by frequent blood glucose measurements via finger, ear-lobe or toe-heel sticks.

Diabetes in the infant, 2-6 mo. — As the infant grows, the patterns of life change - the child sleeps less and feedings become bigger and less frequent. At this time, the insulin may need to be modified with a dose of intermediate acting insulin in the evening to allow sleep throughout the night. I prefer using 4 doses of insulin/day with roughly equal doses of regular insulin at feedings and a dose of NPH insulin at night. As the baby grows and the food intake increases, the insulin dose will need to be changed. Remember that the most rapid growth of extra-uterine life occurs at this age and that insulin requirements always increase rather dramatically during periods of rapid growth. Failure to keep up may result in poor growth. Frequent monitoring of growth, insulin requirements, and blood sugars is necessary.

Diabetes in the infant, 6-12 mo. — A dramatic change occurs when solid foods are introduced and a more adult feeding pattern begins to develop (3

meals and snacks will develop slowly over the next 6 months.) Frequent adjustments of dosage and distribution of insulin are required as solid food intake increases and milk intake decreases. These changes can be facilitated with the use of short-acting regular rather than longer acting insulins. Once on bolus feedings, I usually change the distribution to 35% of the total daily insulin before breakfast, 22% before lunch, 28% before supper and 15% at bedtime. All of the insulin is regular except the bedtime dose which is NPH. The total dose will be based on the previous dose or, if the child is newly diagnosed; between 1-2 units/kg/day. Adjustments are made according to blood glucose profiles.

Diabetes in the Toddler, 1-4 yrs. — Diabetes increases in frequency with this age group, and at least in our part of the country, is fairly common. Onset is usually very abrupt, progression is rapid, and there is usually no remission or "Honeymoon" period. These children are quite "brittle". Add to this fact that these children are learning to walk, thus having a very erratic activity pattern, and developing peculiar eating habits. The rate of growth decreases rapidly after 1 year of age as does food intake. Food intake of 100-150 Kcal/kg in the first year of life decreases rapidly in the second year to 60-80. The parents may perceive this decrease as

illness, but it is normal and they should be reassured. A decrease in growth and food intake will decrease the insulin requirements as well. While the total insulin dose may not decrease, the dose/unit of body weight will. Diet must be modified to meet the food peculiarities of these children. In general, they will not eat foods that require much chewing, but do well with cheese, peanut butter, wieners, Vienna sausages, and soft finger foods. Innovation of the mother and the nutritionist will be needed at this important time to devise a diet which will change frequently as the child gets older. Insulin needs will also change and may be hard to calculate due to the erratic eating habits and the completely unpredictable activity of the toddler. At this age, I usually convert the insulin to a more adult distribution of 3 doses/day of regular and NPH insulin in the morning, regular insulin at supertime and NPH at bedtime. About 3/4 of the insulin is given in the a.m. (roughly 2:1 N/R ratio) and the remainder divided between the supper regular and bedtime NPH, based on the blood glucose profiles.

There are some principles that are useful in the management of diabetes in young children:

- 1) Insulin and dietary requirements of children are never static and must be constantly updated to meet needs of growth.
- 2) In children under the age of 5 years, the brain is still developing and is, therefore, much more susceptible to damage from hypoglycemia than the adult brain. It may be better to run slightly higher rather than lower blood sugars. This is especially true, the younger the child. Treatment of hypoglycemia should be prompt. Parents should always have glucagon on hand and know how to use it.
- 3) Insulin doses can be very low in small children and changes or errors of even 1 unit can be devastating. It is important in small children (or in older children during the remission period when doses are small) to dilute the insulin to U50, U25, or even on occasion to U10. The new 30 unit syringes may help this problem.
- 4) Multiple doses insulin schedules based upon short-acting regular insulin will work best for control because frequent changes will be needed and can be made better with short-acting insulin.
- 5) Frequent blood glucose measurements must be performed even though no one likes to stick a small child any more often than necessary. Changes of insulin dose based upon SBGM are best made using patterns rather than chasing individual blood sugars. Children are so erratic that dosing based on an individual blood sugar may result in severe hypoglycemia. It is better to do blood glucose measurements several times a day, record the values over a several day period, then make adjust-

(Continued on page 15)

Pets: When a New Baby Arrives in the Home

by Warren Eckstein

The Lamaze childbirth class was full. It was the third time for Mary and John Redmond and they wasted no time dispensing information to the newcomers, including Carolyn and David McGrath.

The couple, new to the baby game, was horrified to hear the Redmonds' story of their dog who had to be destroyed after it snapped at their first baby. They strongly suggested that anyone owning a pet should give it away.

Carolyn felt faint. After she and David were married they decided not to have children right away and concentrate on their professional careers. But the house seemed so empty that they bought Nicky, a cute 8-week-old German shepherd.

The Shepherd pup was so tiny then, but now at 80 pounds Carolyn wondered if the Redmonds could be right. The thought of giving up Nicky was more than Carolyn could bear.

What the Redmonds were talking about certainly could happen. Pets can be subject to jealousy or aggression created by fear or confusion.

The pet probably had first place in the hearts of the couple, and was lavished with an inordinate amount of attention. Having all this stripped away when the "real baby" arrives can create major

problems. But it doesn't have to be this way.

First, see that the pet feels comfortable with all the sights, sounds and odors that are part of a baby's world. Prior to the baby's arrival, adjust the pet to mobiles, rattles, and sounds of a crying baby by recording the cries of a friend's infant or purchasing a sound-effects record. Play it at low volume, gradually increasing it until there is no reaction from your pet.

Place baby powder, baby oil and diapers on the floor allowing the pet to sniff around them.

The next important step may seem crazy, so you might not want to reveal this one to your friends. Purchase a doll that resembles a newborn and play house, holding and cuddling the doll. Many pets become jealous when Mom's affectionate with the baby and they are commanded to move away or put outdoors.

By beginning with the doll you'll work out the kinks and won't be as fearful of the pet hurting the baby.

While their wives are hospitalized, husbands are frantic juggling time spent on the job, at the hospital, caring for the home and keeping the pet on schedule. Something has to give, and usually it's the pet's routine. Have a neighbor standing by to help take over

some of these responsibilities until there is some kind of routine set up by the new parents.

There's nothing worse than a pet going through the upheaval of missed meals, fewer walks, loneliness and then coping with the newborn's arrival.

It might be a good idea to have a stack of new pet toys to be handed out by each visitor who comes to see the baby. The pet should never feel he's being left out of the excitement.

Last but not least, make certain the pet has a physical exam prior to the baby's arrival. Ensure that your pet is free of parasites such as worms and fleas and has all vaccinations. Trim your pet's nails to avoid accidental scratches to the newborn.

Most important, NEVER leave a baby or young child alone with a pet. Accidents do happen.

As for the McGraths, they followed the instructions. Now there's little Jessica, and Nicky loves her so much. Each time Jessica cries, Nicky runs to Carolyn, grabs her arm ever so gently, and pulls her over to Jessica. She stands by attentively to ensure that "her" baby Jessica is fine.

(Note: The above article appeared in *Woman's World* 5/24/88.)

Australian Scientists Report Their Findings On Cause of Diabetes

LOS ANGELES (UPI) — Scientists looking for the cause of diabetes say the illness may occur when insulin-producing cells self-destruct in the body, instead of being killed by the immune system in their normal disease-fighting function, according to a recent study.

Australian researchers who were studying mice in an attempt to show how the body's immune system cells destroy insulin-producing beta cells in the pancreas, instead found that the beta cells indeed die but are not always killed by the immune system. The study, not the first to find such evidence, suggests an alternative hypothesis to the development of diabetes.

"This is about the second group to find that it doesn't look like an immune process," Dr. C. Garrison Fatman, a specialist in diabetes and a professor of immunology at the Stanford University School of Medicine, said Wednesday.

"It could be that their study did not answer the question that was posed or it may be that senescence (aging) is built into beta cells. There may even be other hypotheses," he said.

Current scientific wisdom suggests

that the most serious form of the disorder, which usually begins in childhood, is a disease in which the body's immune system recognizes insulin-producing cells as foreign and kills them.

Walter and Eliza Hall of the Institute of Medical Research in Melbourne tried to see if the destruction of the insulin-producing beta cells was linked to a specific molecule being produced in error inside beta cells.

If that was true, they reasoned, it would cause destruction of beta cells and lead to the chronic lifelong insulin deficiency characteristic of the type of diabetes—type one—that begins in childhood.

Type one, which can lead to blindness and even death if not properly treated, is distinguished by high sugar levels in the blood and urine. Type two diabetes, which usually occurs in obese adults, can be controlled with diet and medications and does not require injections of insulin.

Diabetes affects approximately 11 million Americans, according to statistics from the American Diabetes Association. About one million diabetics suffer from the type one form of the disease.

The Halls tested mice to discern the molecular sequence of events that caused diabetic symptoms and reported their findings in the current issue of the British scientific journal *Nature*.

They said their studies indicated the beta cells were dying without the immune system killing them off, findings that suggest an alternative scenario for the development of diabetes.

But immunologist Peter Parham argues in a companion article that the misplacement of certain kinds of molecules may interfere with the synthesis of insulin in the body, somehow choking the beta cells to death and leading to symptoms of diabetes.

Fatman said this would "prevent beta cells from leading a normal life cycle."

"Clearly, diabetes is an autoimmune disease," Fatman said, referring to a disease caused when the body produces antibodies that act against substances produced naturally in the body. He emphasized that diabetes may develop differently in mice than people.

(Note: This article appeared in the *Daily Express and News*, Kirksville, Mo., June 9, 1988.)

ASU Profs Develop Sensing Device to Regulate Insulin Flow

A sensing device developed by two bioengineering faculty members at Arizona State University may prove a boon to those of the nation's 11 million diabetics who need to monitor their blood sugar levels with the aid of insulin.

The tiny sensor, measuring one-eighth inch square, when implanted can measure sugar levels in the blood and automatically adjust the amount of insulin being put artificially into the blood stream by an insulin pump.

Insulin pumps are nothing new. They

already are on the market, but they are of limited use because they pump a constant stream of insulin. In the case of the new device, sensor and pump will act much like a healthy pancreas when paired in a non-diabetic individual.

The creators of the sensor are Bruce Towe, an associate professor of bioengineering, and Eric Guilbeau, a professor of bioengineering at ASU. A patent for the sensor is pending at the U.S. Patent Office.

The device has the ability to replace

the current method used by most diabetics to check their blood sugar levels — that of pricking the finger and placing a drop of blood on a chemically-coated strip. An electronic device then gives an instant reading. This must be done one or two times daily in many cases.

The strips, it has been stated, represent a \$400 million industry.

Although more development work still needs doing, including where in the body to implant the new sensor, Boehringer-Mannheim Corp. of Indianapolis, a

health care organization, has contracted with ASU to pay the university \$30,000 a year for one or two years to test the technology of the device. A royalty arrangement is in the offing for both the university and Towe and Guilbeau should the commercial aspects work out.

The two men have spent four years developing their invention.

(Note: This article appeared in the *Arizona Diabetes Dispatch*, July-August, 1988, published by the ADA of Arizona.)

Insulin Pumps—What's It All About?

by Royanne R. Hollins



Royanne R. Hollins is the Insulin Pump Chairwoman for the Diabetics Division of the National Federation of the Blind. Royanne gives a detailed explanation of what is involved in pump therapy. She explains how she has achieved remarkable control by using an insulin pump.

Let's begin with a few definitions:

Basal Rate:

The rate of continuous insulin delivery in units per hour. This is administered in 0.1 unit increments by the majority of pumps now on the market.

Bolus Rate:

See Meal Bolus

Dawn Phenomenon:

A condition some insulin-dependent diabetics experience resulting in a significant rise in their early morning blood glucose values, possibly requiring additional insulin to control.

Diabetic Ketoacidosis:

A condition resulting from excessive accumulation of ketones, usually accompanied by high blood sugars. It can be detected by the presence of ketone bodies in the urine. Symptoms include thirst, nausea, excessive urinating, etc. Left untreated, the condition can result in serious illness or death.

Infusion Set:

A device consisting of a connector (Luer connector), tubing and a needle used to administer the insulin from the pump into the body.

Insulin Pump:

An external, battery-powered pump containing sophisticated computer chips and a syringe reservoir.

Luer Connector:

A special fitting on the infusion set and the syringe which allows them to be connected together without leaking. All pump companies manufacture their syringes and infusion sets with this Luer connector, thus allowing the patient to interchange another company's infusion set with their pump and syringe, if so desired.

Meal Bolus:

An amount of insulin delivered at one time, at the direction of the patient.

Multiple Basal Rates:

More than one basal rate during a 24-hour period of time. Several pumps have the capacity to deliver as many as 4 basal rates, automatically changing delivery rates at times set by the patient.

Needle Site:

The area where the needle of the infusion set is inserted subcutaneously to administer insulin to the patient.

Subcutaneous:

A term meaning "beneath the skin", as opposed to intravenous for "into the vein" or intraperitoneal for "into the body cavity." All 3 methods are used for insulin delivery, but subcutaneous is by far the most common.

What Is Pump Therapy?

Pump therapy involves the use of an insulin pump, an external battery-powered pump containing sophisticated computer chips and a syringe reservoir. When the syringe is filled with short-acting insulin (Regular), it is installed in the pump and connected to you by a thin plastic tube, called an

infusion set. At the end of the infusion set is a small needle which is inserted into subcutaneous tissue.

Your pump is worn 24 hours a day and delivers insulin through the basal rate -- a pre-programmed continuous low level delivery of insulin and the meal bolus -- a larger amount of insulin administered prior to meals or when glucose levels are elevated.

The pump is not automatic. It must be given instructions by the patient and told how much insulin to give and when to give it. Your insulin dosages are determined through the use of home blood glucose monitoring and by your health care team.

Your pump becomes your partner in the treatment of your insulin-dependent diabetes — not only your partner, but a member of your health care team. Your health care team must get to know your pump as well as you do.

Why Pump Therapy?

The purpose of pump therapy is to maintain your blood glucose values as near a normal range as possible. You must be highly motivated to control your diabetes and should be willing to check your blood glucose values regularly, as well as work closely with your health care team to establish your individual needs and to develop your own pump therapy plan.

What Is Involved In Going on the Pump?

Your treatment regimen may be progressing from conservative to intensive therapy, involving multiple injections of insulin every day. As part of that intensive therapy you are probably doing home blood glucose monitoring on a schedule of some 3 to 4 times a day.

If you are really interested in obtaining the best control possible, being very aggressive in your therapy, establishing more flexibility in your lifestyle and working closely with your health care team, you may be a candidate for an insulin pump.

Using insulin pump therapy does not mean hooking up to a pump and then forgetting about your diabetes. It takes

work — just as much or more as conventional intensive therapy. It takes education. You must know your pump well. If a problem arises, and your pump's alarms go off, you need to know how to troubleshoot the mechanical problems.

Your lifestyle becomes very flexible as well as very regimented and organized. You become flexible with your meal plan and exercise regimen. If you happen to be tied up at work and not able to leave your office in time for a 12:00 lunch, you can delay that meal accordingly. In my personal situation, if I am in a trial in the courthouse, we are not always able to break away on schedule. Therefore, the pump is ideal. You don't spend your time planning ahead or thinking backwards regarding the time that long-acting insulin is going to kick in, to be sure you are sitting down to a meal or are soon to do so. If you are going to exercise vigorously, you can even turn your pump off or turn the basal rate way down temporarily, thus enabling you to avoid an unwanted insulin reaction. If you become ill, the pump may be easily adjusted to a high basal rate and higher bolus schedule, according to your physician's instructions. Once again, you must work closely with your health care team. However, the changes and adjustments are very simple to perform. On insulin pump therapy you do become regimented and organized, in that you schedule yourself for home blood glucose monitoring a minimum of 4 times a day. You do tend to think ahead as far as mechanical failure or a clogged infusion line. I carry an extra infusion set, syringe and insulin in my purse and also my briefcase. That way, I will always have extras available. Further, you need to carry your alarm cards with you. It is not common that you would memorize all the alarm codes upon hookup to your pump — you may go months or longer without hearing an alarm. If an alarm does begin to go off, you need to have that information immediately accessible to you.

Keeping your pump supplies in one designated area in your home requires

space. The supplies are very bulky. One box of infusion sets would last 2 months if you are changing your sets every other day, as recommended by the manufacturer. You also have your box of syringes that are made especially to fit your pump. Once again, one box of syringes would normally last 60 days. These boxes measure about 6x10x6 and 4x6x5, respectively. Further, you must have an extra supply of batteries on hand at all times. Most people who undergo pump therapy keep 6 months' to a year's supply on hand, to avoid the necessity of repetitive reordering of the supplies and keeping a close watch on them.

A by-product of these bulky supplies is an increased amount of garbage. When you compound the infusion sets, the syringes and the battery packaging along with the garbage created by a minimum of 4 blood glucose tests daily, this paper waste really adds up.

Showering can become quite creative when you are on the pump. You have several options, though. You can shower in the morning (at the time you would be changing your infusion set) and every other day you would be completely disconnected from your pump and infusion set for the time it takes to shower and dress. You can clamp off the tubing (infusion line) with a clamp supplied by the manufacturer, allowing you to disconnect the pump at the syringe connection and set it aside while you are showering. (This procedure is also followed while swimming.) You may also wrap your pump in a water-tight zip-lock bag and lay it outside the shower, or hang it from the shower head or around your neck. So you see, your shower time does become quite creative. How many of your friends and relatives get to experience such creativity in their daily lives?

Diabetic ketoacidosis could become a severe, life-threatening problem to a pump wearer who is non-compliant to his or her health-care team's instructions for self-monitoring blood glucose values and/or who does not respond quickly to high glucose values combined with the spilling of ketones in the urine. On pump therapy, you are no longer taking long-acting insulin, so if your insulin delivery stops, your body will be quickly (3 to 8 hours) depleted of all short-acting insulin. Therefore, you could become susceptible to diabetic ketoacidosis much more rapidly than with conventional insulin therapy. You must be especially careful to monitor your glucose levels and insulin, to be aware of possible causes of inaccurate insulin delivery.

You can prevent diabetic ketoacidosis by responding quickly to high blood sugar — checking urine ketones and blood glucose values frequently, and changing infusion sets that may be partially clogged or leaking. You should check ketones whenever you suspect a problem with the needle site, the infusion set, or the pump, and when you are ill, even if your blood glucose values are not elevated.

As stated earlier, the pump is battery-powered. The pumps vary greatly in their battery lives. Some pumps are equipped with batteries that last one year or longer, others that last 30 to 60

days and still others that are rechargeable, needing to be recharged daily.

The cost of pump therapy runs between \$100 and \$200 more a year for the patient with insurance coverage that reimburses at a rate of 80% for the supplies necessary. That works out to between \$8.33 and \$16.67 out-of-pocket expense per month. This could be considered an insignificant figure to a highly motivated patient who will benefit from the tremendous flexibility and added control to be experienced. Not all insurance plans cover pumps and pump supplies. This may be a major factor in the decision for someone considering pump therapy. Be sure to contact your insurance company with written authority and don't forget to ask if they will cover the supplies as well as the pump. There are even some HMOs who cover pumps and pump supplies.

A Day in the Life of a Pumper:

5:30 a.m.:

Arise and shine — it's a new day! Test blood glucose value. Hop on the stationary bike or the indoor treadmill for a 30-minute workout.

6:00 a.m.:

Shower. This happens to be a "change-the-infusion-set" day, so disconnect everything before the shower.

6:40 a.m.:

All dressed and presentable to the world. Prepare new infusion set and syringe — fill syringe with insulin, connect to infusion line, install syringe and infusion set combination into pump and either roll syringe driver or program small bolus into air to assure air-free infusion line. Sterilize infusion site with alcohol, remove infusion protective covering and insert needle into site, subcutaneously. Test blood glucose value.

7:00 a.m.:

Program meal bolus according to blood glucose value and what the meal (breakfast) will consist of. Prepare and eat breakfast.

8:00 a.m.:

Join the maddening crowd on the freeway for a short jaunt to work.

10:30 a.m.:

Feeling kind of shaky. Was it that unhappy client I just dealt with or is my blood glucose getting too low? Check blood glucose value. Nope, right where it should be — must have been that client after all.

Noon:

Time for lunch. Good time to break up the work day too. Check blood glucose value. Program meal bolus. Go to lunch or prepare and eat lunch. Relax for the next hour or so.

2:00 p.m.:

Sit in on a deposition of a key witness on a complex case.

3:30 p.m.:

Break in deposition. Check messages, answer questions.

5:00 p.m.:

Break in deposition. Still going strong — estimate another hour or 2 until completion. Check blood glucose value. Everything is just fine.

6:30 p.m.:

Deposition is finally over. Time to go home!

7:00 p.m.:

Arrive home. Check blood glucose value. Record all glucose levels for the day in diary/record book. Program meal bolus. Prepare dinner and eat. Relax for rest of evening (catch up on reading or watch a TV program).

10:30 p.m.:

Bedtime. Check blood glucose value. See ya in the morning!

I have a blood glucose meter with memory that allows me to postpone recording the blood glucose values in my diary/record book. Normally, my evenings are also filled with a care group, an educational talk or a Board meeting. However, I have kept this example short.

As you can see, the pump allows for quite a bit of flexibility. If I am involved in a trial, I may even be too busy to stop for a complete meal at lunchtime. So, I make the best of it. You don't need a bolus unless you are going to eat a meal or your blood glucose values are high. Sometimes, when exercising, the exercise can actually take the place of a bolus at meal time.

With experience, you are able to predict the effects of stress, exercise, different kinds of food, etc. on your blood glucose levels, and adjust your insulin dosages accordingly. However, even when you are an expert at

predicting your insulin requirements, regular checking of blood glucose values will always be a very important part of your pump therapy.

So, What About Pump Therapy?

If you're interested, there are things you need to do. First, talk to your endocrinologist. He or she knows you and your disease best (next to yourself, of course). If he or she is unfamiliar and/or uncomfortable with pump therapy, you can ask for a referral to someone who is proficient in this area. Secondly, you need to educate yourself. If you will be deciding on which pump to get, order the sales materials from all of the manufacturers and read. Contact pumpers in your local area and talk with them personally about the pros and cons of pump therapy.

The line of communication between you and your endocrinologist must be completely open. Once you've decided on what pump to get and you are all hooked up, you must work very closely with your health care team to assure a smooth transition to becoming a "pumper."

Personally, I feel the benefits far outweigh any possible negatives for pump therapy. I have achieved remarkable control, that intensive therapy of 4 shots a day did not produce. Further, the flexibility in meal planning and exercise is perfect for my lifestyle and chosen career. I have undergone major surgery while on pump therapy and my pre-surgery and post-surgery diabetes control remained status quo without any major problems arising. I like pump therapy. Pumper (as I lovingly call my pump) and I are great friends.

The decision is yours. Good luck and happy pumping!

Breakthrough in Treatment of Kidney Failure Patients with Anemia

by Anne Campbell, M.S.P.H.
Patient Education Coordinator,
Dialysis Clinic, Inc.

A new method of helping anemic dialysis patients by administering a hormone to increase red cell development is currently under research in the United States. It may be important for you and others you know to be aware of this research and its implications. Before more details on the research, however, it would help to learn more about the problem of anemia so the research will make more sense.

KEY WORDS:

ANEMIA — lack of red blood cells
HEMATOCRIT — percentage of red cells in the blood; normal = 40-50%

ERYTHROPOIETIN — hormone (chemical messenger) that stimulates red cell production

every 3 is a diabetic. In most cases the combination of diabetes and high blood pressure, which these people frequently had, led to the eventual failure of their kidneys through slow and painless damage to the fragile filters in each kidney. Treatments for kidney failure such as dialysis and transplant have improved vastly over the past two decades in terms of safety, efficiency, less time involved and better survival rates. Thus the situation facing all persons, including diabetics, who suffer kidney failure is more encouraging than in the past. Since such a large number of dialysis patients have diabetes and many diabetics may someday need dialysis or transplant therapy, it is important to keep updated on developments in the treatment of renal failure.

Anemia Problem

One of the problems affecting kidney patients that has not improved much
(Continued on page 14)

Background

Of the 100,000 people currently on dialysis in the United States, about 1 of

in terms of treatment over the years is anemia, a condition of having fewer red blood cells than normal. Although all kidney patients are checked to see if they are losing blood from any source or are low on iron, these common causes of anemia in many people do not explain the dramatic level of anemia found in people with renal failure. One of the lesser known functions of the kidneys is the production of a hormone which stimulates production of red blood cells within the marrow of the bones. This hormone is called erythropoietin. (E-rith-row-poe'-i-tin).

Diseased kidneys gradually become less and less able to make the correct amount of erythropoietin. Without this signal to produce, the bone marrow "factory" for blood cells becomes less able to make enough for the body's needs. In people with kidney disease the cause of anemia is thus a production problem. Add to this the fact that red cells do not live the usual six weeks in the blood stream when they are uremic toxins, and one can see why anemia occurs.



Anne Campbell, M.S.P.H., a health professional, explains how dialysis can cleanse the blood of impurities but can do nothing to stimulate red cell production. She reports on a nation-wide research trial of erythropoietin, a hormone produced by the kidney, which helps promote red cell production.

Importance of Oxygen

Why is anemia such a problem? The answer lies in the task that red blood cells are designed to do. As blood flows through the lungs, red cells act like train cars which pick up oxygen as it is breathed into the lungs. The red cells then deliver this oxygen to every cell in the body. Why is oxygen so important? Our bodies run on two types of fuel: food and oxygen. Oxygen is vital to giving us energy and helping to keep us warm. An anemic person cannot deliver the right amount of oxygen to the cells. The effects of this can cause a person to be weak, more sensitive to cold temperature, and short of breath and fatigued by exertion such as climbing stairs or doing housework or yardwork. Paleness of skin, lips, and fingernails may also result from anemia.

The anemia often progresses slowly over the months and years before total kidney failure. By the time dialysis is

necessary it is not unusual for a person to have only half the normal number of red cells. There are two tests for measuring anemia. One measures a substance called hemoglobin (hee-moe-globe-in) which gives red blood cells the ability to carry oxygen. The other measures the amount of red cells in the blood. This test is called the hematocrit (hee-ma'-toe-crit). Normally the hematocrit ranges from 37 to 47% of the blood volume. In women it is slightly lower than in men. For the dialysis patient, a hematocrit of 20 to 30% is not unusual. Anemia is responsible for a great deal of the weakness and fatigue that is experienced by dialysis patients.

Current Therapy

No type of dialysis therapy has been able to solve the problem of anemia. While dialysis can clearly see the blood of impurities, it can do nothing to stimulate red cell production. The forms of therapy for anemia in people on dialysis have been iron supplements and/or weekly injections of a synthetic hormone substitute for erythropoietin. While these provide help, they are usually not nearly as effective as the real hormone. This is shown by the rise in hematocrit in people who have received a kidney transplant. If the new kidney works well and produces enough erythropoietin, the hematocrit often returns to 40% or above. Contrary to popular belief, blood transfusions are not a routine part of dialysis. In fact, physicians use iron or synthetic hormones to increase the hematocrit so that transfusions will not be necessary. Only in the rare case where hematocrit falls below 15% will blood products be used.

The Hope of Erythropoietin

Up until the present there has been no perfect solution for the anemic person on dialysis. Patients have had to put up with medications with side effects, worry about risks of possible blood transfusions, feel less energetic and warm, and be less able to work and achieve rehabilitation. Therefore, there has been great interest in a nationwide research trial of erythropoietin which was recently completed. The study included 9 medical centers and 300 hemodialysis patients.

Physicians have long known about erythropoietin, but any attempts to extract it from animal sources met with problems of expense and inability to purify it enough to prevent illness in the receivers. In 1983 Amgen, a California company which specializes in research with genes, discovered the genetic code of erythropoietin. By knowing what it is made of, it was possible through the process of recombinant DNA technology to get erythropoietin to reproduce itself in a cell culture. This provided a source of real erythropoietin although it did not come from an animal or human source. The testing of this hormone on 300 patients was done for purposes of establishing proper dosing and safety. The hormone was administered through the blood tubing three times weekly at the end of each hemodialysis treatment. Dosage was determined by the hematocrit level in each patient.

Implications

What are the implications of this research? The ultimate hope is that by giving this hormone routinely to dialysis patients, normal hematocrit levels can be achieved. This would serve several functions: (1) the risk of ever needing blood transfusions would be greatly reduced, saving patients the fear of contracting blood-borne diseases; (2) dialysis treatments might be better tolerated by non-anemic people; (3) people would be stronger and warmer; and (4) this would enable many to live more productive lives because they would feel better.

No change in technology is without potential problems. So far there have been three problems identified with the use of erythropoietin. First, it can make dialysis slightly less efficient because it takes longer to clean blood that has more red cells. Dialysis time may or may not need to be adjusted. Second, the dosing for proper speed of raising

the hematocrit to normal in severely anemic patients is vital. If raised too quickly, the possibility of seizure exists. Third, it may increase blood pressure. These problems have been studied thoroughly and the research has shown how to provide safe dosing and effective therapy.

The 30 hemodialysis patients in central Missouri who participated in this study have had dramatic improvement in their health and strength. If successful in the hemodialysis patients, it is hoped that an injection form can be made available to peritoneal dialysis patients. In the future perhaps it will even be possible to give erythropoietin in the predialysis phase and prevent anemia from occurring. What a wonderful possibility for the near future—the solution to a vexing and debilitating problem that will brighten the lives of dialysis patients, nationwide. FDA approval of erythropoietin is expected by the end of 1988.

It's That Time of Year

by Ed Bryant



Ed Bryant, Editor, gives salesmanship tips to members of the NFB.

possible after our promotion we should thank store management for allowing us to work at the store.

2. The first rule of selling is always sell yourself. This is initiated by a nice, warm, friendly smile. The second step is to enthusiastically extend your hand for a handshake. This means a firm handshake with conviction so that the store manager knows you are pleased to meet him and excited about doing business at his/her store. The art of handshaking is a subject all in itself. Please remember not to shake the person's hand so hard that you remind him of a bone crusher; equally important, do not shake his hand so loosely that you remind him of a jellyfish. A handshake means a lot in the world of business, and each of us will be well rewarded by remembering this simple message.

3. Display signs: Always put the name of our organization, the National Federation of the Blind, at the top of the display sign in large, bold print. We should always note on the signs that we are a non-profit organization, and that all donations are appreciated and tax deductible. When possible, they should be placed at eye level. This will draw the most attention but due to space restrictions it is sometimes best to tape the signs from the edges of our tables.

4. Items for sale: The commodity sold most often is candy. It is also wise to offer supplementary items such as small novelty products. With just one item our sales effectiveness is sometimes limited.

(Continued on page 15)

The Christmas season is traditionally a big fund-raising time for our organization, the National Federation of the Blind (NFB). Many of our NFB chapters sell candy and other items in front of stores such as supermarkets and discount outlets. The following are suggestions that will help raise additional money, improve our personal public relations with customers and store management, and show the public that, although many of us "happen to be blind", we are active and participating in society.

When working at stores, there are many tools in the fine art of salesmanship that, when used correctly, will help each of us as individuals and, more importantly, help local chapters of NFB:

1. Store management should be extended the courtesy of a person-to-person visit when arranging the sales promotion of his/her store. As soon as

Time of Year

(Continued from page 14)

5. **Display of merchandise:** Always maintain a nice display of candy on the table, as people's attention will be more readily captured. Also we should give each customer some NFB literature.

6. **Location:** We should always try to place our table close to the doors; however, we must make certain that it is not in the way of customers or grocery carts. We should also stay out of the way of electric doors, and, if we are carrying a cane, we must make certain that they do not interfere with store traffic.

7. **Scheduling:** If possible we should schedule both a male and a female at each location, and there should always be a cane or guide dog in sight. What better way to display these symbols of our independence.

8. **Money Management:** It would be wise not to use a cup to collect money. We should consider the psychological effect. People look inside the cup and see only change; therefore, in their minds when they give a donation they are thinking in terms of coins instead of paper money. We should also remember that, unfortunately, many people picture blind people as standing on a corner, holding out a cup, asking for money. This stereotype does not apply to the vast majority of blind people. Some NFB chapter members use money aprons which are quite handy and efficient.

9. **Communications:** We have had much success by asking each customer for a donation and asking them to buy a box of candy to help the National Federation of the Blind. Usually we will do better to get the customer's attention before letting them know how much our products cost.

We should gear our presentation toward capturing the customer's imagination. Two keys to successful communication are congenial smiles and enthusiastic voices.

10. **Thank you letter:** At the conclusion of any fund-raising event, a formal thank you letter to store management is definitely needed. If the event is selling candy in front of stores, and we will be there on several different dates, then a thank you letter is needed at the conclusion of the selling season.

The aforementioned materials can be extremely advantageous to us if we make a dedicated effort to project the name of the National Federation of the Blind by seeing how well we can do at selling our products.

Diabetes in the Infant

(Continued from page 11)

ments based on the pattern of blood glucose values.

Diabetes in the infant and toddler can be a difficult and frustrating illness to treat. It is my opinion that these children can be adequately managed, but expertise is required. I believe referral to someone with expertise in children with diabetes of this age group, who has access to a team with similar experience, is necessary to ensure optimal growth and adequate control. Care of such children is difficult and often times frustrating, but the outcome can be very rewarding when the process is done correctly.

(Note: The above article appeared in *Diabetes Reports*, June 1988, which is published by the Kentucky Diabetes Foundation.)



Karen Derrick is a registered dietitian at the Veteran's Administration Hospital of Columbia, Missouri. She is an insulin dependent diabetic who graciously calculates the diabetic exchanges and food values for our recipes.

Send your great ideas to the editor. He is the official taste tester and needs recipes to test his taster.

Correction: In the Summer Edition, Vol. 3 No. 3, we apologize for an error. Following the Creamed Egg recipe there should have been a note which stated: "The above recipe has been altered slightly to be more dietetically appropriate. It came from a braille cookbook called *Food For Thought* by April Enderton." The note was inadvertently placed after the Deviled Egg recipe.

Jam
by Linda Carstens
from Virginia, MN

2 cups rhubarb
1 cup water
1 cup pineapple (water-packed)
1 pk. Jello (strawberry) sugar free
Cook rhubarb, water, and pineapple till well done. Add Jello, cook a short time, and refrigerate.

Recipe Corner

(Note: Linda says you can use any fruit combination you want. Her husband likes tomatoes with a lemon and lemon Jello.)

Yield: 4 cups (64 servings at 1 Tbs. per serving); Calories: 3; Diabetic Exchanges: Free

Super Tuna Salad
by Charlotte Verduin
from Carbondale, IL

1 12 oz. can water-packed tuna
3 hard-boiled eggs
3-4 sticks celery, chopped
2-3 carrots, chopped or shredded
1/2 green pepper, chopped
1 small apple, cored and chopped
2 Tbs. red onion, chopped
1/2 cup raisins
1/3-1/2 c. Lite Miracle Whip (to taste approx.)
Lettuce "bed" for each serving
Mix, serve with crackers and beverage—and all exchanges for a full meal are met!

Yield: 6 servings; Calories: 210; Diabetic Exchanges: 2 meat, 1 vegetable, 1 fruit.

Turkey Chili
by Gail Bryant
from Columbia, MO

Note: Gail says that if you are watching calories, this tasty recipe might fit the bill. Gail and her husband, the taste tester, think that this recipe is great.

1 lb. ground turkey
2 medium onions, finely chopped
2 16 oz. cans kidney beans
2 16 oz. cans whole tomatoes (do not drain)
1 8 oz. can tomato sauce
2 tsp. minced garlic
1 Tbs. cumin
2 tsp. chili powder
Salt to taste

Saute onions and turkey until brown. Set aside. In a sauce pan place tomatoes with juice and chop finely. Add tomato sauce and spices. Mix thoroughly. Combine turkey and tomato mixtures and stir well. Place lid on sauce pan and simmer for 1 1/2 hours or until done. Stir occasionally. If there are leftovers, this recipe is easily heated in the microwave.

Yield: 6 one-cup servings; Calories: 340; Diabetic Exchanges: 3 meat, 2 starch

Subscription/Donation/Membership Form

Although the \$2.00 annual membership fee of the Diabetics Division of the National Federation of the Blind (NFB) entitles you to a year's subscription to *Voice of the Diabetic*, production cost per annual subscription of the *Voice* is about \$8.00. For this reason, we must charge all non-members, health professionals, and institutions \$8.00 for an annual subscription. Of course, all donations are accepted and very much appreciated.

If you wish to become a member of the Diabetics Division of NFB, receive a copy of *Voice of the Diabetic*, or make a donation to the Diabetics Division of NFB, please check the appropriate box or boxes below:

☐ I would like to become a member of the Diabetics Division of the NFB and receive *Voice of the Diabetic*:
☐ in print ☐ on cassette tape* ☐ both in print and on cassette tape* (\$2.00)
 *cassette tapes are provided to the blind at no extra cost.

☐ I am a non-member or health professional who would like to receive *Voice of the Diabetic*.
 (Also institutional rate) (\$8.00)

☐ I would like to make a tax-deductible contribution of \$_____ to the Diabetics Division of the NFB.
 Please print clearly

Name _____

Address _____

City _____ State _____ Zip _____

Telephone Number (_____) _____

Send this form or a facsimile along with your check to our editor:

Ed Bryant, 811 Cherry St., Suite 306, Columbia, MO 65201.

Please make all checks payable to the NATIONAL FEDERATION OF THE BLIND.

What You Always Wanted to Know But Didn't Know Where to Ask

(Resource List)

(Inclusion of materials in this publication is for information only and does not imply endorsement by the Diabetics Division of NFB.)

What's Coming Up

By Ed Bryant

A detailed report will appear in the next issue of *The Voice* in which I explain various models of blood glucose monitoring meters with audio output. I am currently examining three meters, but if I can obtain others I will do so and report on those also. Following are the three that I am now examining:

1. Glucocheck S.C. Audio Monitor: I wrote an article about this meter in *Voice of the Diabetic* vol. 3 #1, Winter Edition. At the time I was happy with the instrument. Since then, however, I have progressively become dissatisfied with the technical performance of the monitor. In addition, Equimed Medical Products, Inc. (the company who sells the device) has been less than professional in its dealings with me. I currently recommend that the Glucocheck S.C. Audio monitor not be purchased. A more detailed report will be put in the next issue of the *Voice*.

2. Diascan-S: I have been testing this model from Home Diagnostics, Inc. for a short while and find it very easy to use. I have had no problems with it so far.

3. One Touch! I am just becoming familiarized with this monitor by Life-Scan, so time will tell me of its efficiency.

I recently contacted Boehringer Mannheim Diagnostics from Indianapolis, Indiana about a new blood glucose meter with audio output that they will have on the market before long. They agreed to let me test and evaluate their new monitor also. This new meter and the others will be in my upcoming report, so be watching for this information.

Equipment

Inject Aid Syringe/Vial Holder: For the blind and those with shaky hands. Sets the dosage accurately and combines the vial and syringe into a single, steady, easy-to-handle unit. It is designed for all-length syringes. For two types of insulin mix; simply use two Inject Aid units set at correct dosage. Inject Aid Syringe price is \$7.95; Vial Center Aid \$3.95. Order from George Wright Industries, 82 W. Lakeshore Dr., Lincoln, NE 68528; telephone: (402) 447-1382.

Over 500 aids available: optical aids, non-optical aids, electronic aids. For a free catalog, contact: Multiple Services Media Technology, Inc., 1000 4th St., Ste. 880, San Rafael, CA 94901. Phone: (415) 454-6788; in California 1 (800) 507-3333; for national calls 1 (800) 222-7765.

Cassettes

High and Low Blood Sugar and Healthy Hygiene is a tape transcribed from booklets published by the Kentucky Diabetes Foundation. Price: \$1.00

per cassette. Contact our resource librarian Cheryl McCaslin, 3115 Crestview, Apt. 107, Dallas, TX, 75235; telephone: (214) 528-8107.

Braille

New exchange list for meal planning: We have available in braille the new "Exchange List for Meal Planning" (83 braille-written pages bound in a nice durable plastic cover). This revision, the first in 10 years, is the result of a joint effort of the American Diabetics Association and the American Dietetic Association and reflects today's food values and eating patterns. It continues to restrict fat but emphasizes high carbohydrate and fiber foods. Nutritive values have been increased in such foods as fruits, milk products and carbohydrate/starch exchanges. New additions include a list of free foods, exchange values of combination foods, and a list of foods for occasional use. There is also a glossary of nutritional terms and an index of foods.

The price for the braille "Exchange List for Meal Planning" is \$15.00. Make checks payable to National Federation of the Blind and order from Karen Mayry, Diabetics Division of NFB, 919 Main Street, Suite 15, Rapid City, SD 57701; telephone: (605) 348-8418.

Print

The Physician Within—Taking Charge

Of Your Well Being by Catherine Feste: the advertisement for this 175 page book states that it "is about self motivation for people who are trying to follow either a pattern of healthy living or their specific medical regimen. The price is \$8.75. To order call Diabetes Center, Inc., Wayzata, MN, Toll Free at 1 (800) 848-2793.

Gestational Diabetes—Guidelines for a Safe Pregnancy and a Healthy Baby by Marion J. Franz, M.S., R.D., Nancy Cooper, R.D., and Lucy Mullen, R.N.: the advertisement for this 40 page book says that it explains why gestational diabetes develops, how it is related to other types of diabetes, and what must be done both to ensure a safe pregnancy and a healthy baby, and to prevent the development of permanent diabetes. The price is \$3.50. To order, call Diabetes Center Inc. in Wayzata, MN, Toll Free at 1 (800)-848-2793.

(Note: The following books were listed in the Winter 1988 issue of *Diabetes Dateline*, published by the National Diabetes Information Clearinghouse.)

Diabetes Management Guides by Ada P. Kann, M.P.H. is an introductory handbook that outlines the basic components of diabetes management. A few of the subjects discussed include self monitoring techniques, pregnancy and special concerns of women, children with diabetes, and advances in the treatment of diabetes. The price is \$3.95 plus \$.85 for postage and handling. Order from Wordscope Associates, P.O. Box 1594, Skokie, IL, 60076.

Tidbits And Humor

Don't Forget

Just a reminder to all Diabetics Division members of the NFB, please don't forget to send your annual dues (\$2.00) to *Voice of the Diabetic*, 811 Cherry Street, Suite 306, Columbia, MO 65201. Make checks payable to National Federation of Blind.

The \$2.00 annual fee is for membership in the Diabetics Division of the NFB and not a subscription charge for our newsletter. For those hospitals, agencies and other organizations that wish to subscribe, the cost is \$8.00 for a yearly subscription (4 issues).

Q: On what day are the most babies born

A: Labor Day.

Thank You! Thank You! Thank You!

by Ed Bryant

Lurlie Buddemeyer assists our editor by being part of the crew that puts gum labels on newsletters and keeps them in order. Lurlie is an inspiration to everyone who knows and works with her. She is so dedicated that, once she has started working it is almost impossible to slow her down until the job is finished.

Lurlie, I thank you personally and also I speak for the Diabetics Division of The National Federation of the Blind when we say -- "THANK YOU!"

Spread the Word

If you know someone who may be interested in reviewing *Voice of the Diabetic*, ask and we will send him or her a complementary print, or cassette tape copy. Contact the editorial office, 811 Cherry Street, Suite 306, Columbia, Mo. 65201; telephone: (314) 875-8911.

Make Your Voice Heard

As editor of *Voice of the Diabetic*, I would like to hear about any foul-ups or goofs, as well as your recommendations and criticisms. Articles for *The Voice*, changes of address, and other correspondence should be sent to: Ed Bryant, 811 Cherry St., Suite 306, Columbia, MO 65201. Office Phone: (314) 875-8911.

A Special Delivery: Your Handbook for Managing Diabetes and Pregnancy, compiled by the Perinatal Outreach Education Program Staff of the Memorial Medical Center in Long Beach, California, addresses the special concerns of pregnant women with diabetes. Price: \$5.00. Order from Perinatal Outreach, Memorial Medical Center of Long Beach, CA 90801-1428; telephone: (213) 595-2311.

A Winner's Creed

(Author Unknown)

If you think you are beaten, you are,
If you think you dare not, you don't.
If you'd like to win, but think you can't,
It's almost a cinch you won't.

If you think you'll lose, you're lost;
For out in the world we find
Success begins with a person's will,
It's all in the state of mind.

Life's battles don't always go
To the stronger or faster hand;
But sooner or later the person who wins
Is the one who thinks, "I can!"

(Note: The above appeared in the July, 1988 *Insight*, the publication of the National Federation of the Blind of South Dakota.)

Q: What do you get when you cross an owl with a goat?

A: You get a Hootin nanny.

Continuing Education

We have been asked to carry the following announcement: The International Diabetes Center (Minneapolis, MN) presents "Team Management of Diabetes Mellitus", a five-day educational experience for health professionals interested in quality clinical care, advanced technology and a wellness approach to diabetes management. Health professionals participate in classes with individuals with diabetes and their family members. The course will be repeated several times during the remainder of 1988: October 10-14, 17-21; November 7-11, November 28-December 2; December 12-16.

For those health professionals whose major focus is the management of Type II (non-insulin dependent diabetes), the International Diabetes Center (Minneapolis, MN) is presenting a 3-day course, "Partners in Managing Type II Diabetes." This program covers the team approach to management with an emphasis on wellness. The dates this course will be offered in 1988 are: November 14-16 and December 5-7.

Happenings

by Kan and Linda Carstens

There are people who make things happen. There are people who watch things happen. There are people who let things happen, and people who don't know anything has happened.

The real purpose of our existence is not to make a living, but to make a life.

Booker T. Washington Quote

"The longer I live the more I am convinced that the one thing worth living for and dying for is the privilege of making someone more happy and more useful. No man who ever does anything to lift his fellow ever makes a sacrifice."